



# 19TH AVENUE CORRIDOR STUDY



CITY AND COUNTY OF SAN FRANCISCO

PUBLICATION DATE: FEBRUARY 12, 2010

PUBLIC MEETING DATE: FEBRUARY 24, 2010

PUBLIC COMMENT PERIOD: FEBRUARY 12-26, 2010

*Written comments should be sent to:*

Rick Cooper, Senior Environmental Planner  
San Francisco Planning Department  
1650 Mission Street, Suite 400  
San Francisco, CA 94103

GOVERNMENT  
DOCUMENTS DEPT

FEB 23 2012

SAN FRANCISCO  
PUBLIC LIBRARY

**5/S**



*San Francisco Public Library*

Government Information Center  
San Francisco Public Library  
100 Larkin Street, 5<sup>th</sup> Floor  
San Francisco, CA 94102

**REFERENCE BOOK**

*Not to be taken from the library*





# SAN FRANCISCO PLANNING DEPARTMENT

---

**DATE:** February 12, 2010  
**TO:** Distribution List  
**FROM:** Rick Cooper, Senior Environmental Planner  
**SUBJECT:** 19<sup>th</sup> Avenue Corridor Study

This is the 19<sup>th</sup> Avenue Corridor Study, which has been prepared by the San Francisco Planning Department pursuant to San Francisco Board of Supervisors Resolution Nos. 080014 and 080015, adopted on October 20, 2008. This legislation requires that a comprehensive cumulative impact study encompassing all reasonably foreseeable developments located along the 19<sup>th</sup> Avenue Corridor Study area be prepared and continually updated by the San Francisco Planning Department and Municipal Transportation Authority. (Please note that although the study includes the proposed Parkmerced Project among the projects considered in the analysis, it has been prepared only pursuant to the legislation noted above and is not intended to fulfill the requirements of the California Environmental Quality Act.)

A **public meeting** on the study has been scheduled for **February 24, 2010, from 6:00 PM to 8:00 PM** in the Nob Hill Room, Seven Hills Conference Center, San Francisco State University, 800 Font Boulevard, San Francisco, California 94132

**Public comments on the draft study** will be accepted until 5:00 PM on February 26, 2010. Written comments should be addressed to Rick Cooper, Senior Environmental Planner, San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103.

If you have any questions about the 19<sup>th</sup> Avenue Corridor Study, please call Rick Cooper at 415-575-9027.

1650 Mission St.  
Suite 400  
San Francisco,  
CA 94103-2479

Reception:  
**415.558.6378**

Fax:  
**415.558.6409**

Planning  
Information:  
**415.558.6377**



# 19TH AVENUE CORRIDOR STUDY

CITY AND COUNTY OF SAN FRANCISCO

PUBLICATION DATE: FEBRUARY 12, 2010

PUBLIC MEETING DATE: FEBRUARY 24, 2010

PUBLIC COMMENT PERIOD: FEBRUARY 12-26, 2010

*Written comments should be sent to:*

Rick Cooper, Senior Environmental Planner  
San Francisco Planning Department  
1650 Mission Street, Suite 400  
San Francisco, CA 94103





# 19<sup>th</sup> AVENUE CORRIDOR STUDY

## TABLE OF CONTENTS

<b>I.</b>	<b>19<sup>th</sup> AVENUE CORRIDOR STUDY DESCRIPTION.....</b>	<b>I.1</b>
A.	Introduction .....	I.1
B.	Corridor Study Overview .....	I.1
C.	Corridor Study Location.....	I.2
D.	Foreseeable Development Projects in the Corridor Study Area .....	I.9
<b>II.</b>	<b>UTILITIES AND PUBLIC SERVICES</b>	
A.	Water Delivery Facilities.....	II.A.1
B.	Wastewater Collection, Treatment and Stormwater Management .....	II.B.1
C.	Police Protection Services .....	II.C.1
D.	Fire Protection and Emergency Medical Services.....	II.D.1
E.	Recreation and Park Facilities .....	II.E.1
F.	Public Schools .....	II.F.1
<b>III.</b>	<b>TRAFFIC AND CIRCULATION .....</b>	<b>III.1</b>
	Executive Summary.....	III.1
A.	Introduction .....	III.6
B.	Existing Conditions .....	III.13
C.	Description of Analysis Tiers .....	III.34
D.	Future Baseline Conditions (Tier 1 and Tier 2).....	III.64
E.	Future Plus Projects Conditions (Tier 3 and Tier 4).....	III.79
F.	Analysis Summary.....	III.124
<b>IV.</b>	<b>REPORT AUTHORS.....</b>	<b>IV.1</b>

## APPENDICES

Appendix A:	San Francisco Board of Supervisors Legislation
Appendix B:	Conceptual Project Improvement Plans
Appendix C:	Area Projects Travel Demand
Appendix D:	Intersection Lane Geometry and Volumes
Appendix E:	Intersection Level of Service Calculations and Parameter Adjustments
Appendix F:	Microsimulation Analysis
Appendix G:	Transit Screenline Calculations
Appendix H:	Transit Travel Time Calculations
Appendix I:	High-Occupancy Toll (HOT) Lane Analysis

## LIST OF FIGURES

Figure I.1:	19 <sup>th</sup> Avenue Corridor Study Area.....	I.3
Figure III.1:	Study Area.....	III.7
Figure III.2:	Analysis Locations .....	III.11
Figure III.3:	Existing Transit Network .....	III.20

Figure III.4:	Muni Screenlines.....	III.22
Figure III.5:	Existing Bicycle Network .....	III.30
Figure III.6:	Tier 2 Projects .....	III.35
Figure III.7:	Tier 2 Transit Network.....	III.36
Figure III.8:	Tier 3 Roadway Network Changes .....	III.38
Figure III.9:	Tier 3 Transit Network.....	III.39
Figure III.10:	Tier 4A Roadway Network Changes .....	III.44
Figure III.11:	Tier 4A Transit Network .....	III.45
Figure III.12:	Tier 4B Roadway Network Changes.....	III.49
Figure III.13:	Tier 4B Transit Network .....	III.50
Figure III.14:	Tier 4C Roadway Network Changes.....	III.53
Figure III.15:	Tier 4C Transit Network .....	III.54

## LIST OF TABLES

Table I.1:	19 <sup>th</sup> Avenue Corridor Study Foreseeable Development Projects.....	I.11
Table II.A.1:	SFPUC Estimated Retail Water Supplies, 2010-2030 .....	II.A.6
Table II.A.2:	SFPUC Estimated Average Annual Retail Water Demand .....	II.A.8
Table II.A.3:	Estimated Water Demands by Project .....	II.A.10
Table II.A.4:	Comparison of Projected Water Supply and Demand for Normal, Single Dry, and Multiple Dry Years.....	II.A.11
Table II.B.1:	Predicted Changes in Impervious Surface .....	II.B.4
Table II.B.2:	Changes in Estimated Sanitary Sewage .....	II.B.6
Table III.1:	Intersection Level of Service – Existing Conditions (Weekday Peak Hours) .....	III.16
Table III.2:	Intersection Level of Service – Existing Conditions (Weekend Midday Peak Hour) .....	III.18
Table III.3:	Existing Muni Service in the Study Area .....	III.21
Table III.4:	Muni Screenline Groupings Used for the Corridor Study .....	III.23
Table III.5:	Muni Vehicle Capacity .....	III.24
Table III.6:	Muni Screenline Summary – Existing Conditions (Weekday AM Peak Hour).....	III.25
Table III.7:	Muni Screenline Summary – Existing Conditions (Weekday PM Peak Hour).....	III.26
Table III.8:	Collision Summary, 2003/2004 -2007/2008.....	III.32
Table III.9:	Pedestrian and Bicycle Count Summary, May 2009 (Weekday PM Peak Hour).....	III.32
Table III.10:	Tier 2 Development Projects Land Use Program .....	III.58
Table III.11:	Tier 2 Development Projects Weekday Daily Person Trips .....	III.58
Table III.12:	Tier 2 Development Projects Overall Mode Split.....	III.59
Table III.13:	Tier 2 Development Projects External Peak Hour Vehicle Trips .....	III.59
Table III.14:	Tier 2 Development Projects External Peak Hour Transit Trips .....	III.60
Table III.15:	Intersection Level of Service – Tier 1 and Tier 2 (Weekday Peak Hours).....	III.65
Table III.16:	Intersection Level of Service – Tier 1 and Tier 2 (Weekend Peak Hour).....	III.67
Table III.17:	Muni Screenline Summary – Tier 1 and Tier 2 (Weekday AM Peak Hour) .....	III.70
Table III.18:	Muni Screenline Summary – Tier 1 and Tier 2 (Weekday PM Peak Hour).....	III.72
Table III.19:	Muni Travel Time Increases – Tier 1 and Tier 2 .....	III.75
Table III.20:	Intersection Level of Service – Tier 3 (Weekday Peak Hours) .....	III.80
Table III.21:	Intersection Level of Service – Tier 3 (Weekend Peak Hour).....	III.82

Table III.22:	Intersection Level of Service – Tier 4A (Weekday Peak Hours) .....	III.84
Table III.23:	Intersection Level of Service – Tier 4A (Weekend Peak Hour) .....	III.86
Table III.24:	Intersection Level of Service – Tier 4B (Weekday Peak Hours) .....	III.90
Table III.25:	Intersection Level of Service – Tier 4B (Weekend Peak Hour) .....	III.92
Table III.26:	Intersection Level of Service – Tier 4C (Weekday Peak Hours) .....	III.96
Table III.27:	Intersection Level of Service – Tier 4C (Weekend Peak Hour) .....	III.98
Table III.28:	Muni Screenline Summary – Tier 3 and Tier 4 (Weekday AM Peak Hour) ...	III.103
Table III.29:	Muni Screenline Summary – Tier 3 and Tier 4 (Weekday PM Peak Hour) ....	III.105
Table III.30:	Muni Travel Time Increases – Tier 2, Tier 3 and Tier 4 .....	III.108
Table III.31:	Intersection Level of Service – Tier 4A HOT Lane Variant (Weekday Peak Hours) .....	III.118
Table III.32:	Intersection Level of Service – Tier 4B HOT Lane Variant (Weekday Peak Hours) .....	III.119
Table III.33:	Intersection Level of Service – Tier 4C HOT Lane Variant (Weekday Peak Hours) .....	III.121
Table III.34:	Muni Travel Time Increases – HOT Lane Variant .....	III.122
Table III.35:	Summary of Intersections Operating at Unacceptable Level of Service (LOS) .....	III.124
Table III.36:	Summary of Muni Lines Operating above Capacity .....	III.126





## **I. 19<sup>th</sup> AVENUE CORRIDOR STUDY DESCRIPTION**

---

### **A. INTRODUCTION**

The San Francisco Planning Department has prepared this *19<sup>th</sup> Avenue Corridor Study* (hereinafter “Corridor Study”) pursuant to Board of Supervisors’ Resolution Nos. 081004 and 081005. The intent of the Corridor Study is to identify the demand for, and any deficiencies in, traffic and transportation systems, public services and utilities, recreational resources, and schools as a result of reasonably foreseeable developments along and in the vicinity of the 19<sup>th</sup> Avenue Corridor (hereinafter “Corridor Study area”). It is not meant to circumvent any requirements of the California Environmental Quality Act (CEQA) related to individual projects. Instead, it is meant to separately analyze comprehensive cumulative impacts prior to, or in conjunction with, an individual project’s environmental review.

### **B. CORRIDOR STUDY OVERVIEW**

In October 2008, the San Francisco Board of Supervisors adopted two resolutions related to the 19<sup>th</sup> Avenue Corridor: Files No. 081004 and 081005. Resolution No. 081004 adopted interim controls requiring Conditional Use Authorization for any new large development project consisting of 20 residential units or more and/or 50,000 square feet or more of retail or commercial space that would be located along or near the southern portion of the 19<sup>th</sup> Avenue Corridor. These controls remain in effect for a period of 18 months (until April 2010). Prior to any Conditional Use Authorization, parking and traffic studies, as well as information determining the sufficiency of police, fire and emergency services, and adequacy of other factors, such as public services, affecting public safety and the quality of life for neighboring residents, must be submitted to the Board of Supervisors and Planning Commission.

Resolution No. 081005 requires that a comprehensive cumulative impact study, encompassing all reasonably foreseeable developments located in the Corridor Study area, be prepared and continually updated by the San Francisco Planning Department and Municipal Transportation Authority. The reasonably foreseeable developments identified in the resolution are the Parkmerced Project, San Francisco State University (SFSU) 2007-2020 expansion (Campus Master Plan), expansion at the Stonestown Galleria Shopping Center site, mixed-use development at 77-111 Cambon Drive, residential development at 800 Brotherhood Way, redevelopment of the San Francisco Unified School District (SFUSD) “School of the Arts” site (700 Font Boulevard), residential development on a portion of the Arden Wood site (445 Wawona Street); and mixed-use development at the Kragen Auto Center in the Balboa Park Better Neighborhoods Plan (1150 Ocean Avenue Project).

This 19<sup>th</sup> Avenue Corridor Study is the cumulative impact study required by Resolution No. 081005. It is a separate study to be performed prior to, or in conjunction with, any environmental review required for an individual foreseeable development project. It must consider impacts on traffic, public transit, transportation and circulation, public services and utilities, recreational resources, and schools. A draft of this study is to be circulated for a public comment and review period. The cumulative impact study is intended to be updated when new environmental review applications for projects are filed within the Corridor Study area.

### C. CORRIDOR STUDY LOCATION

As defined in the legislation, the Corridor Study area consists of approximately 1,400 acres located in the southwest corner of the City and County of San Francisco (see Figure I.1: 19<sup>th</sup> Avenue Corridor Study Area). The area boundary commences at Lake Merced Boulevard at the San Francisco County line and then runs north along Lake Merced Boulevard to Sloat Boulevard, east along Sloat Boulevard to 19<sup>th</sup> Avenue, north along 19<sup>th</sup> Avenue to Taraval Street, east on Taraval Street to Claremont Boulevard, south on Claremont Boulevard to Portola Drive, southwest on Portola Drive to Junipero Serra Boulevard, and south on Junipero Serra Boulevard to the County line.<sup>1</sup> A larger, potentially affected area identified in Resolution No. 081004 extends the study area west to the Great Highway and Skyline Boulevard. This area is considered for the purposes of transportation and circulation analysis.

#### Existing Uses in the Vicinity of the Corridor Study Area

Land uses in the vicinity of the Corridor Study area include Lake Merced Park, the Olympic Country Club, Fort Funston (part of the Golden Gate National Recreation Area), and the San Francisco Zoo to the west; Stern Grove and the Parkside District to the north; the West of Twin Peaks District to the northeast; and low-density residential development east of Junipero Serra Boulevard.

Directly west and adjacent to the Corridor Study area is Lake Merced Park, a 614-acre park that offers active and passive recreation opportunities. There are trails for cycling, running, and walking, as well as three fishing piers, two picnic areas, and a boathouse. Lake Merced Park is

---

<sup>1</sup> The mixed-use development at the Kragen Auto Center within the Balboa Park Better Neighborhoods Plan (1150 Ocean Avenue Project) is not located within the defined Corridor Study area boundary; however, the legislation identifies this project as having cumulative impacts in the Corridor Study area. Therefore, analyses in this Corridor Study consider the potential cumulative effects from the 1150 Ocean Avenue Project.





SOURCE: AECOM; Turnstone Consulting

# 19TH AVENUE CORRIDOR STUDY

FIGURE I.1: 19TH AVENUE CORRIDOR STUDY AREA

also a popular destination for bird watching.<sup>2</sup> The nine-hole Jack Fleming Golf Course and the 18-hole Harding Park Golf Course occupy the eastern portion of the park.<sup>3</sup> Other uses along the western shore of the lake include the San Francisco Police Pistol Range and the Pacific Rod and Gun Club. The 721-unit Lakewood Apartments complex is west of the Pacific Rod and Gun Club.<sup>4</sup>

Farther west is Fort Funston (part of the Golden Gate National Recreation Area), which includes hiking trails, a pre-World War II gun emplacement called Battery Davis, and a launch and landing site for hang gliders.

The private Olympic Country Club is located to the south of Lake Merced and Fort Funston and also straddles the border between San Francisco County and San Mateo County. The country club consists of three separate golf courses: the 9-hole Cliffs Course, the 18-hole Lake Course, and the 18-hole Ocean Course.<sup>5</sup>

The San Francisco Zoo, which is northwest of Lake Merced, is a 100-acre facility bounded by Sloat Boulevard on the north, the Great Highway on the west and the south, and State Route 35/Skyline Boulevard on the east. It is managed by the nonprofit San Francisco Zoological Society in partnership with the City and County of San Francisco and attracts approximately 925,000 visitors a year.<sup>6</sup>

Immediately north of the Corridor Study area is the 33-acre Stern Grove Park. Stern Grove is located at the northeast corner of 19<sup>th</sup> Avenue and Sloat Boulevard and includes meadows, walkways, and an outdoor amphitheater used for admission-free dance, music, and theater performances during the summer.<sup>7</sup> Stern Grove abuts Larsen Park to the north and Pine Lake Park to the west. Parkside Square is adjacent to and north of Pine Lake Park. Together, these four parks form a contiguous area of parkland on the north side of Sloat Boulevard that stretches from 19<sup>th</sup> Avenue to 34<sup>th</sup> Avenue.

---

<sup>2</sup> Lake Merced brochure, available on the San Francisco Recreation and Park Department website, [http://www.parks.sfgov.org/wcm\\_recpark/Volunteer/Brochures/LakeMerced.pdf](http://www.parks.sfgov.org/wcm_recpark/Volunteer/Brochures/LakeMerced.pdf), accessed September 15, 2009.

<sup>3</sup> San Francisco Public Utilities Commission website, [http://sfwater.org/msc\\_main.cfm/MC\\_ID/20/MSC\\_ID/179](http://sfwater.org/msc_main.cfm/MC_ID/20/MSC_ID/179), accessed September 15, 2009.

<sup>4</sup> Lakewood Apartments website, <http://www.lakewoodatlakemerced.com>, accessed September 15, 2009.

<sup>5</sup> *Ibid.*

<sup>6</sup> San Francisco Zoo website, <http://www.sfzoo.org/openrosters/ViewOrgPageLink.asp?LinkKey=14092&orgkey=1903>, accessed September 15, 2009.

<sup>7</sup> Stern Grove Festival website, <http://www.sterngrove.org/index.html>, accessed September 15, 2009.



Farther north of the Corridor Study area is the Parkside District, which is generally the area bounded by 14<sup>th</sup> Avenue on the east, Wawona Street on the south, the Pacific Ocean on the west, and Rivera Street on the north. (The eastern portion of the Parkside District is located within the Corridor Study area boundary.) The Parkside District is characterized by detached single-family homes, mainly one or two stories above a garage. Neighborhood-serving retail uses are concentrated along Taraval Street from 14<sup>th</sup> Avenue to 36<sup>th</sup> Avenue. Other land uses in the Parkside District include Lincoln High School, McCoppin Square, South Sunset Playground, Larsen Park, and Parkside Square.

The West of Twin Peaks District, northeast of the Corridor Study area, is generally the area bounded by Junipero Serra Boulevard and 14<sup>th</sup> Avenue on the west; Ortega Street, Laguna Honda Boulevard, and Woodside Avenue on the north; O'Shaughnessy Boulevard, Melrose Avenue, and Phelan Avenue on the east; and Ocean Avenue on the south. This district includes the Balboa Terrace, Forest Hill, Miraloma Park, St. Francis Wood, Sunnyside, West Portal,<sup>8</sup> and Westwood Park neighborhoods. All of these neighborhoods are characterized by detached single-family homes. Neighborhood-serving retail uses are concentrated along Ocean Avenue between Phelan Avenue and Lakewood Avenue. Land uses in the West of Twin Peaks District include Aptos Playground, the Balboa Reservoir, Mt. Davidson Park, Miraloma Playground, and Sunnyside Playground.

The Ocean View District, which is adjacent to and east of the Corridor Study area, is generally the area bounded by Junipero Serra Boulevard on the west, Ocean Avenue on the north, and Interstate 280 on the east and the south. (The western portion of the Ocean View District is located within the Corridor Study area boundary.) The Ocean View District includes the Ingleside, Ingleside Terrace, Merced Heights, and Ocean View neighborhoods, all of which are characterized by detached single-family homes. Multi-story, multi-unit residential buildings and neighborhood-serving retail uses are concentrated along Ocean Avenue between Phelan Avenue and Lakewood Avenue. The Ocean View District includes a number of parks and recreation facilities: Brooks Park, Brotherhood/Chester Mini-Park, Brotherhood/Head Mini-Park, Junipero Serra Playground, Lakeview/Ashton Mini-Park, Merced Heights Playground, Minnie and Lovie Ward Recreation Center, and Randolph/Bright Mini-Park. The main campus of the City College of San Francisco is east of the Ocean View District. The Balboa Park Bay Area Rapid Transit (BART) station is south of City College.

### **Existing Uses in the Corridor Study Area**

The Corridor Study area is located primarily within portions of the Lakeshore District and West Portal neighborhoods. (The northeast corner of the Corridor Study area is also comprised of a

---

<sup>8</sup> The West Portal neighborhood is located within the Corridor Study area.

portion of Parkside District.) The Lakeshore District is generally the area bounded by Junipero Serra Boulevard on the east, the San Francisco County line on the south, the Pacific Ocean on the west, and Wawona Street on the north. This district includes the Parkmerced, Stonestown, and Merced Manor neighborhoods, as well as Lake Merced, SFSU, the San Francisco Zoo, the Stonestown Galleria, Pine Lake Park, and Stern Grove. The West Portal neighborhood is generally the area bounded by Wawona Street, 15<sup>th</sup> Avenue, and Taraval Street on the north, Claremont Boulevard on the east, Portola Avenue and Junipero Serra Boulevard on the southeast, Eucalyptus Drive on the south, and 19<sup>th</sup> Avenue on the west.

The private 18-hole San Francisco Golf Club, which abuts the border between the San Francisco County and San Mateo County lines, is the southernmost land use within the Corridor Study area. North of the San Francisco Golf Course and south of Brotherhood Way are several institutional and religious facilities, including St. Thomas More Catholic Church, St. Thomas More School, the Alma Via assisted living community, Brandeis Hillel Day School, Congregation Beth Israel-Judea, the Calvary Armenian Congregational Church, the Lake Merced Church of Christ, Bridgemont High School and Junior High, Brotherhood Masonic Temple, the KZV Armenian School, San Francisco Lodge No. 120 of the Free and Accepted Masons, and Holy Trinity Greek Orthodox Church.

The land on the north side of Brotherhood Way, west of Chumasero Drive, is a level open space area under the jurisdiction of the San Francisco Department of Public Works (DPW). This open space is landscaped with grass and several clusters of trees, and it features a 20-foot-high statue by sculptor Benjamin Bufano. To the north of this open space, there is a vacant development site (800 Brotherhood Way).

The Parkmerced residential neighborhood was constructed between 1941 and 1951 and included a combination of two-story residential buildings and 13-story towers surrounded mainly by lawns. The original property totaled 192 acres, and was generally bounded by Vidal Drive, Font Boulevard, and Holloway Avenue to the north, 19<sup>th</sup> Avenue and Junipero Serra Boulevard to the east, Brotherhood Way to the south, and Lake Merced Boulevard to the west. Over many decades, various blocks along the northern, eastern, and southern perimeters of the original development complex have been subdivided and sold to third parties.

SFSU is adjacent to and north of Parkmerced. Founded in 1899, the school is part of the California State University system and offers undergraduate and graduate degrees in more than 200 areas of specialization. The campus covers 144 acres and includes classroom and administration buildings, athletic facilities, open space, and on-site housing for more than 2,300

students.<sup>9</sup> In late 2007, the California State University Board of Trustees approved the *2007-2020 San Francisco State University Campus Master Plan* (SFSUCMP), which is a long-range plan for guiding the growth and development of the campus through 2020.

Near the southwest corner of SFSU, there is a roughly triangular 2.5-acre property on the north side of Font Boulevard that is owned by the San Francisco Unified School District. The single-story, 51,000-square-foot building on the site was previously occupied by the School of the Arts and is now vacant.

The Stonestown Galleria, which is north of SFSU, is on the west side of 19<sup>th</sup> Avenue between Eucalyptus Drive and Buckingham Way. This regional shopping center includes approximately 130 stores, various restaurants, a Trader Joe's grocery store, a two-screen movie theater, and parking for approximately 3,700 vehicles.<sup>10</sup>

Lowell High School, located on the south side of Eucalyptus Drive at Forest View Drive, is located northeast of Lake Merced. The campus includes two- and three-story buildings and various athletic playing fields and facilities. Lowell High School abuts Lakeshore Elementary School to the west and Rolph Nicol Playground to the east. St. Stephen Catholic Parish and St. Stephen School are east of Rolph Nicol Playground.

The Merced Manor neighborhood, which is the area generally bounded by 19<sup>th</sup> Avenue on the east, Eucalyptus Drive on the south, State Route 35/Skyline Boulevard on the west, and Sloat Boulevard on the north, is characterized by detached single-family homes that consist of one or two stories above a garage. Merced Manor includes Lakeshore Plaza, a neighborhood-serving shopping center on the south side of Sloat Boulevard between Clearfield Drive and Everglade Drive.

The eastern boundary of the Parkside District and the West Portal neighborhood is the northeastern corner of the Corridor Study area. This area is characterized by detached single-family homes. The West Portal neighborhood includes neighborhood-serving retail uses concentrated along West Portal Avenue between the West Portal Muni station and 15<sup>th</sup> Avenue. The Arden Wood residential care facility and the California Scottish Rite temple are located in the vicinity of the 19<sup>th</sup> Avenue and Sloat Boulevard intersection.

---

<sup>9</sup> San Francisco State University: Facts 2008/2009 Brochure, available on the San Francisco State University website, [http://www.sfsu.edu/~puboff/sfsufact/archive/0809/files/SFSU\\_Facts\\_0809.pdf](http://www.sfsu.edu/~puboff/sfsufact/archive/0809/files/SFSU_Facts_0809.pdf), accessed September 15, 2009.

<sup>10</sup> General Growth Properties website, <http://www.ggp.com/Properties/MallDirectory.aspx?smuid=725>, accessed September 15, 2009.



Portions of the Ingleside Terraces and Ingleside Heights neighborhoods<sup>11</sup> are adjacent to and east of the Corridor Study area. These neighborhoods are characterized by detached single-family homes. The Junipero Serra Playground is located within this area, east of SFSU.

### **Transportation and Major Transit Corridors in and in the Vicinity of the Corridor Study Area**

There are several major transportation corridors in and in the vicinity of the Corridor Study area. State Route 35/Skyline Boulevard is a two-lane highway that runs north-south along the west side of Lake Merced and connects San Francisco with the communities on the San Francisco Peninsula. State Route 1/19<sup>th</sup> Avenue is a six-lane roadway that runs north-south through the Corridor Study area. Interstate 280 runs north-south along the San Francisco Peninsula. After crossing the San Francisco County line at the southeast corner of the Corridor Study area, Interstate 280 heads northeast toward its terminus near China Basin in San Francisco's South of Market area.

Major transit routes are located within and in the vicinity of the Corridor Study area. Muni bus routes in the Corridor Study area are Route 28 19<sup>th</sup> Avenue and Route 28L 19<sup>th</sup> Avenue Limited along 19<sup>th</sup> Avenue; Route 17 Parkmerced, which runs from the Parkmerced site to the West Portal Station via Buckingham Way and Junipero Serra Boulevard; Route 18 46<sup>th</sup> Avenue, which runs from Stonestown Galleria to the Legion of Honor via Lake Merced, 46<sup>th</sup> Avenue, and Ocean Beach; Route 29 Sunset, which runs from Candlestick Park to the Presidio via McLaren Park, the Balboa Park BART station, SFSU, Sunset Boulevard, Lincoln Way, Golden Gate Park, and 25<sup>th</sup> Avenue; and the 88 Mission/BART Shuttle, which runs from Lake Merced to the Balboa Park BART station via Parkmerced and Mission Street. The L Taraval Muni light rail line exits the Twin Peaks Tunnel at the West Portal Station and continues along Ulloa Street to Taraval Street, where it terminates near the Great Highway. The M Oceanview Muni light rail line exits the Twin Peaks Tunnel at the West Portal Station, continues along West Portal Avenue to 19<sup>th</sup> Avenue, crosses 19<sup>th</sup> Avenue at Junipero Serra Boulevard, continues to Randolph Street, and terminates at the Balboa Park BART station. The K Ingleside also exits the Twin Peaks Tunnel at the West Portal Station, continues along West Portal Avenue to Junipero Serra Boulevard and to Ocean Avenue where it terminates at the Balboa Park BART station. The Daly City BART station is approximately 500 feet southeast of the Corridor Study area. The Balboa Park BART station is located about 1 mile east of the Corridor Study area.

---

<sup>11</sup> The Ingleside Terraces and Ingleside Heights neighborhoods are two of the four residential areas identified within the Ocean View District.



#### D. FORESEEABLE DEVELOPMENT PROJECTS IN THE CORRIDOR STUDY AREA

Several foreseeable development projects within the Corridor Study area are under consideration: the Parkmerced Project, 800 Brotherhood Way, 77-111 Cambon Drive, 700 Font Boulevard, 445 Wawona Street (the Arden Wood site), the 2007-2020 SFSUCMP, Stonestown, and the 1150 Ocean Avenue Project, which is within the *Balboa Park Station Area Plan*. (See Table I.1: 19<sup>th</sup> Avenue Corridor Study Foreseeable Development Projects.)

The proposed Parkmerced Project site is an existing residential neighborhood with 3,221 residential units on approximately 152 acres of land. The site is generally bounded by Vidal Drive, Font Boulevard, Pinto Avenue, and Serrano Drive to the north; 19<sup>th</sup> Avenue and Junipero Serra Boulevard to the east; Brotherhood Way to the south; and Lake Merced Boulevard to the west. The proposed Parkmerced Project is a long-term mixed-use development program to comprehensively replan and redesign the Parkmerced site. This project would increase residential density, provide a neighborhood core with new commercial and retail services, modify transit facilities, and improve utilities within the development site. A new Pre K-5 school and day care facility, a fitness center, and new open space uses, including athletic fields, walking and biking paths, an approximately 2-acre organic farm, and community gardens, would also be provided on the site. About 1,683 of the existing apartments would be retained on the site. Over a period of approximately 20 years, the remaining 1,538 existing apartments would be demolished in phases and fully replaced, and an additional 5,679 net new units would be added to the site. With implementation of the Parkmerced Project, there would be a total of 8,900 units on the site. A Notice of Preparation for the Parkmerced Project was published on May 20, 2009, and the project is currently undergoing environmental review.

The 7.7-acre site at 800 Brotherhood Way is between the southern edge of the Parkmerced site and the existing DPW open space on the north side of Brotherhood Way. The parcel is currently landlocked, but a new access road from the southeast corner of the parcel to Brotherhood Way is proposed. The project at 800 Brotherhood Way involves a subdivision of the lot and the construction of 60 single-family homes and 61 two-unit buildings.<sup>12</sup> This project was entitled on May 19, 2005, but construction has not yet begun.<sup>13</sup>

The 2.8-acre triangular site at 77-111 Cambon Drive is adjacent to and east of the Parkmerced site, on the west side of 19<sup>th</sup> Avenue. The proposed project at 77-111 Cambon Drive involves the

<sup>12</sup> San Francisco Planning Department, *800 Brotherhood Way Final Mitigated Negative Declaration*, May 19, 2005.

<sup>13</sup> Minutes from the May 19, 2005 meeting of the San Francisco Planning Commission, available on the San Francisco Planning Department website, [http://www.sfgov.org/site/planning\\_page.asp?id=32658](http://www.sfgov.org/site/planning_page.asp?id=32658), accessed October 15, 2009.

demolition of two existing one-story commercial buildings and the construction of a mixed-use project with approximately 200 dwelling units, 15,000 square feet of retail space, a fitness center and a club room, and underground parking for 248 vehicles and 61 bicycles.<sup>14</sup> The buildings would range in height from two to four stories. An Initial Study and Notice of Preparation of an Environmental Impact Report have been prepared for this project.

The 2.5-acre site at 700 Font Boulevard, which is the former home of the School of the Arts, has been identified as a potential site for a development project that could provide as many as 340 dwelling units, but no formal applications have been filed.

The 12.2-acre site at 445 Wawona Street is partially developed with the 119,000-square-foot Arden Wood residential care facility. The property owner has offered to subdivide the site into two parcels of 4.6 and 7.6 acres and sell the latter parcel to a private developer. The Arden Wood residential care facility would remain on the 4.6-acre parcel. One potential development scenario proposed for the 7.6-acre parcel calls for the construction of up to 142 dwelling units. No formal applications have been filed.

From 1989 through 2007, enrollment at SFSU was capped at 20,000 full-time equivalent students (FTE).<sup>15</sup> In late 2007, the California State University Board of Trustees approved a proposal to increase enrollment to 25,000 FTE by 2020. The projected increase in enrollment and related increases in faculty and staff required the *1989 Campus Master Plan* to be updated. The 2007-2020 SFSUCMP proposes physical changes and improvements to the campus to address the increased enrollment. Some existing buildings and facilities would be upgraded and expanded, while others would be demolished and replaced. Some new buildings and facilities would be constructed. In total, these proposed physical improvements would result in the net addition of approximately 972,400 square feet and approximately 660 dwelling units to the campus. On November 14, 2007, the California State University Board of Trustees certified the Final EIR and approved the 2007-2020 SFSUCMP. Implementation of the 2007-2020 SFSUCMP is currently under way. The renovation and expansion of the existing library began in March 2009.<sup>16</sup>

---

<sup>14</sup> San Francisco Planning Department, *77-111 Cambon Drive Initial Study and Notice of Preparation of an Environmental Impact Report*, October 13, 2007.

<sup>15</sup> One FTE is defined as one student taking 15 course units, which represents a full course load, during a semester.

<sup>16</sup> San Francisco State University Campus Master Plan website, <http://www.sfsu.edu/~build/construct.htm>, accessed November 11, 2009.

Table I.1: 19<sup>th</sup> Avenue Corridor Study Foreseeable Development Projects

19 <sup>th</sup> Avenue Corridor Study	Individual Development Projects							
	Parkmerced	San Francisco State University (SFSU)	800 Brotherhood Way	77-111 Cambon	700 Font (SFUSD)	Stonestown	445 Wawona (Arden Wood)	1150 Ocean
Existing Acreage	152 acres	144 acres	7.7 acres	2.8 acres	2.5 acres	40.7 acres	7.6 acres (development and “conservation” sites)	1.84 acres
<b>Existing Development</b>								
<i>Residential</i>	3,474,937 gsf	(see Institutional/Educational gsf below)	0	0	0	0	0	0
<i>Number of Dwelling Units</i>	3,221 d.u.	541 d.u.	0	0	0	0	0	0
<i>Retail/Office</i>	10,755 gsf	0	0	30,790 gsf	0	864,400 gsf	0	14,900 gsf
<i>Institutional/Educational</i>	3,949 gsf	1,150,318 gsf	0	0	51,000 gsf	0	0	0
<i>Maintenance</i>	28,343 gsf	0	0	0	0	0	0	0
<i>Structured Parking</i>	959,400 gsf	0	0	0	0	0	0	0
<i>Other (movie theater)</i>	0	0	0	0	0	2-screen theater	0	0
<b>Proposed Net New Development</b>								
<i>Residential</i>	11,500,000 gsf	(gsf not available)	444,273 gsf	254,000 gsf	Not available	0	(gsf not available)	181,000 gsf
<i>Number of Dwelling Units</i>	5,677 net new du (8,900 du total)	657 net new d.u. (1,198 total du)	182 d.u (60 single family and 61 two-unit dwellings).	199 d.u.	340 d.u.	0	142 du	175 du
<i>Retail/Office</i>	310,000 gsf (230,000 retail and 80,000 office)	0	0	15,000 gsf	0	180,000 gsf	0	35,000 gsf
<i>Institutional/Educational</i>	25,000 gsf	808,977 gsf	0	0	0	0	0	0
<i>Maintenance</i>	100,000 gsf	13,439 gsf	0	0	0	0	0	0
<i>Structured Parking</i>	2,900,000 gsf	0	0	99,800 gsf	0	0	0	0
<i>Other (fitness)</i>	64,000 gsf	0	0	included in retail	0	0	0	0
<i>Other (conference center)</i>	0	150,000 gsf	0	0	0	0	0	0
<i>Other (movie theater)</i>	0	0	0	0	0	8-screen movie theater	0	0
<b>Total net new proposed gsf</b>	<b>10,421,596 gsf</b>	<b>972,415 gsf</b>	<b>444,273 gsf</b>	<b>373,300 gsf</b>	<b>(gsf not available)</b>	<b>180,000 gsf plus movie theater</b>	<b>(gsf not available)</b>	<b>216,000 gsf</b>
<b>Total net new du</b>	<b>5,677 net new du (8,900 du total)</b>	<b>657 net new d.u. (1,198 total du)</b>	<b>182 d.u.</b>	<b>199 d.u.</b>	<b>340 d.u.</b>	<b>0</b>	<b>142 d.u.</b>	<b>175 d.u.</b>

Notes:

gsf = gross square feet

du = dwelling units

Source: Resolution Nos. 081004 and 081005, San Francisco Mayor’s Office, Turnstone Consulting





The western portion of the Stonestown Galleria site has been identified as a potential location for a new eight-screen movie theater and approximately 180,000 square feet of office and retail space, but no formal applications have been filed.

The *Balboa Park Station Area Plan*, adopted by the San Francisco Board of Supervisors on April 7, 2009,<sup>17</sup> is a long-range plan that covers a 210-acre area around the Balboa Park BART station in south-central San Francisco.<sup>18</sup> Its purpose is to provide a regulatory framework to make improvements to the public realm (open space, streets and sidewalks, transit infrastructure), modify existing zoning controls to enhance the existing neighborhoods, and set objectives for future development in the area. The 1150 Ocean Avenue Project, which is within the *Balboa Park Station Area Plan* boundary, would include demolition of the existing 14,900 gsf retail/office space and construction of approximately 175 dwelling units, 35,000 square feet of ground-floor retail uses, 4,300 square feet of open space, and 281 parking spaces (175 residential spaces and 106 non-residential spaces).<sup>19</sup> This project was entitled on May 21, 2009, but construction has not yet begun.<sup>20</sup>

---

<sup>17</sup> Minutes from the April 7, 2009 meeting of the San Francisco Board of Supervisors, available on the San Francisco Board of Supervisors website, [http://www.sfgov.org/site/bdsupvrs\\_page.asp?id=104612](http://www.sfgov.org/site/bdsupvrs_page.asp?id=104612), accessed September 15, 2009.

<sup>18</sup> San Francisco Planning Department, *Balboa Park Station Area Plan*, April 2009.

<sup>19</sup> San Francisco Planning Department, *Balboa Park Station Area Plan Final Environmental Impact Report*, December 4, 2008.

<sup>20</sup> Minutes from the May 21, 2009 meeting of the San Francisco Planning Commission, available on the San Francisco Planning Department website, [http://www.sfgov.org/site/planning\\_page.asp?id=105826](http://www.sfgov.org/site/planning_page.asp?id=105826), accessed October 15, 2009.



## II. UTILITIES AND PUBLIC SERVICES

---

### A. WATER DELIVERY FACILITIES

#### EXISTING WATER DELIVERY AND FACILITIES CONDITIONS

##### Regional Water System

Potable (drinking-quality) water for the Corridor Study area is provided by the San Francisco Public Utilities Commission (SFPUC), which manages a complex Regional Water System (RWS) that provides water to approximately 2.5 million people in San Francisco, Santa Clara, San Mateo, Alameda, and Tuolumne counties. The RWS consists of three integrated water supply and conveyance systems: the Hetch Hetchy, Alameda, and Peninsula systems. The SFPUC is currently implementing the Water System Improvement Program (WSIP) to provide improvements to its water infrastructure.

##### Water Supply

Effective January 1, 2002, the State of California adopted Senate Bill 610 (SB 610). SB 610 requires land use planning entities, such as the City and County of San Francisco, when evaluating large development and redevelopment projects,<sup>1</sup> to request an assessment of the availability of water supplies from the water supply entity that will provide water to a project. The Water Supply Assessment (WSA) is performed in conjunction with the land use approval process associated with a project and must include an evaluation of the sufficiency of the water supplies available to the water supplier to meet existing and future demands, including the demand for a project over a 20-year time period that includes normal, single-dry, and multiple-dry years.

The SFPUC prepared an *Urban Water Management Plan* in 2005 (2005 UWMP) as required by Section 10610.4 of the California Water Code. When a new development project is accounted for in the demand projections of an UWMP, the WSA can refer to the UWMP and no further analysis is necessary. In an effort to streamline the water supply planning process within San Francisco, the SFPUC adopted a resolution in 2006 to allow all development projects requiring a WSA under SB 610 to rely solely on the SFPUC's 2005 UWMP without having to prepare individual WSAs. Because the San Francisco Planning Department and SFPUC are currently engaged in

---

<sup>1</sup> Under SB 610, large projects are defined as 1) a project creating the equivalent demand of 500 residential units, 2) a proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space, or 3) a commercial building employing more than 1,000 persons or having more than 250,000 square feet of floor space.

planning for various large land development proposals<sup>2</sup> that go beyond the future developments considered in the 2005 UWMP, the SFPUC concluded that its 2005 UWMP no longer accounted for every qualifying project in San Francisco. Therefore, until the 2010 UWMP is prepared, a WSA must be prepared for any qualifying project not accounted for in the 2005 UWMP. The WSA must consider the SFPUC's current and projected supplies in light of projected demands associated with new growth not covered in the 2005 UWMP.

### Sources of Water Supply

The SFPUC delivers an annual average of approximately 265 million gallons of water per day (mgd),<sup>3</sup> with approximately 85 percent of that water supply provided by the Hetch Hetchy system, which diverts water from the Tuolumne River. The balance (approximately 15 percent) comes from runoff in the Alameda Creek watershed, which is stored in the Calaveras and San Antonio reservoirs, and runoff from the San Francisco Peninsula, which is stored in the Crystal Springs, San Andreas, and Pilarcitos Reservoirs. A small portion of retail<sup>4</sup> water demand is met through locally produced groundwater, used primarily for irrigation at local parks and on highway medians, and recycled water, which is used for wastewater treatment process water, sewer box flushing, and similar wash-down operations.

#### Groundwater

San Francisco overlies all or part of eight groundwater basins: the Westside, Lobos, Marina, Downtown, and South basins, which are located wholly within the City limits; and the Islais Valley, South San Francisco, and Visitation Valley basins, which extend south into San Mateo County. The portion of the Westside Basin located within San Francisco is commonly referred to as the North Westside Basin. Except in the Westside and Lobos basins, groundwater is insufficient for municipal supply due to low yield. Local groundwater in San Francisco is used for irrigation in some parks, as well as for non-potable purposes at the San Francisco Zoo and Golden Gate Park.

Early in its history, San Francisco made significant use of local groundwater, springs, and spring-fed surface water, and in the 1930s pumping rates from the groundwater basin on the west side of the City were reported to be up to a total of 6 mgd. However, since the development of surface

---

<sup>2</sup> Three large projects are proposed: Parkmerced, Treasure Island-Yerba Buena Island Redevelopment Plan, and Candlestick Point-Hunters Point Shipyard Phase II Project.

<sup>3</sup> PBS&J, *Final Water Supply Availability Study*, October 2009 (hereinafter referred to as "WSAS"), pp. 5-6. A copy of this study is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case File 2008.0021E.

<sup>4</sup> The SFPUC's retail customers are homes and businesses, mostly in San Francisco, served directly by the SFPUC. Retail customers also include Treasure Island and customers outside the City at the San Francisco Airport, the Town of Sunol, Lawrence Livermore Laboratories, Castlewood, and Groveland Community Services District.



water supplies in the Peninsula and Alameda watersheds and the subsequent completion of the Hetch Hetchy system in the 1930s, the use of groundwater for the water supply system has been minimal.<sup>5</sup>

The SFPUC is currently studying implementation of the San Francisco Groundwater Supply Project, created as part of the WSIP, to expand use of the local groundwater resource to provide ongoing supply and to improve reliability during droughts, during maintenance activities, and after an earthquake or other emergency. The Groundwater Supply Project proposes the construction of up to six wells and associated facilities in the western part of San Francisco to extract up to 4 mgd of water from the North Westside Basin for distribution in the City. The extracted groundwater would be treated, disinfected, and blended in small quantities with surface water supplies before entering the municipal drinking water system.

#### Recycled Water

For 50 years prior to 1981, San Francisco's McQueen Treatment Plant provided recycled water to Golden Gate Park for irrigation. Because of changes in regulations, the City closed the McQueen plant and discontinued use of recycled water in Golden Gate Park. Currently, disinfected secondary-treated<sup>6</sup> recycled water from the SFPUC's Southeast Water Pollution Control Plant is used on a limited basis for wash-down operations in the combined sewer system and is also provided to construction contractors for dust control and other construction purposes. Current use of recycled water for these purposes in San Francisco is less than 1 mgd.<sup>7</sup>

In March 2006, the SFPUC updated the Recycled Water Master Plan for the City. The 2006 Recycled Water Master Plan identified where and how San Francisco could most feasibly develop recycled water in the City and provided strategies for implementing the recycled water projects that were identified. The SFPUC plans to continue to diversify San Francisco's water supply portfolio by increasing the use of local water sources, such as recycled water, groundwater, water conservation, and desalination.

The San Francisco Recycled Water Program currently includes the Westside, Harding Park, and Eastside Recycled Water Projects. These proposed projects would provide up to 4 mgd of recycled water to a variety of users in San Francisco. Recycled water would primarily be used for landscape irrigation, toilet flushing, and industrial purposes.

---

<sup>5</sup> SFPUC, *2005 Urban Water Management Plan for the City and County of San Francisco*, December 2005.

<sup>6</sup> Secondary effluent has undergone treatment to remove floatable materials (such as oil and grease), settleable materials (such as sand and gravel), and a substantial portion of the organic compounds in the waste. In San Francisco, it is treated with chlorine to kill bacteria and the chlorine is removed before being discharged.

<sup>7</sup> WSAS, pp. 7-8.

The Westside Recycled Water Project would provide recycled water to several sites on the west side of San Francisco. The system would produce recycled water at a proposed recycled water treatment facility in Golden Gate Park and deliver the water to the San Francisco Zoo, Golden Gate Park, and Lincoln Park Golf Course for landscape irrigation, and for non-potable uses at the zoo and Golden Gate Park, including at the California Academy of Sciences. The SFPUC has begun the project-specific environmental review for this project.

### **Water Conservation**

The SFPUC is committed to demand-side management<sup>8</sup> programs, and the City's per capita water use has dropped by about one-third since 1977 due in part to these programs.<sup>9</sup> The first substantial decrease occurred following the 1976-77 drought. Gross per capita water use dropped from 160 gallons to 130 gallons per capita per day. Despite continuous growth in the City since then, water demand has remained lower than pre-drought levels.<sup>10</sup>

In addition to plans for repairs and improvements to the water supply system infrastructure, the WSIP calls for increased water conservation. The SFPUC's current demand management programs range from financial incentives for plumbing devices to improvements in the distribution efficiency of the system. With this conservation program, the SFPUC anticipates reducing gross per household consumption from 91.5 gallons per capita per day in 2009 to 87.4 gallons per capita per day by 2018, which would result in a conservation supply potential of approximately 4.0 mgd annually.

### **Water Supply Reliability Planning**

To enhance the reliability of the RWS, improve dry-year supplies, diversify the water supply portfolio, and meet projected wholesale and retail demand through 2030, the SFPUC developed the WSIP in 2005. After certification of the Final Program EIR (PEIR) for the WSIP by the Planning Commission on October 30, 2008, the SFPUC adopted the Phased WSIP option analyzed in the PEIR. The Phased WSIP would meet projected 2018 demand of approximately 285 mgd by capping deliveries from the RWS at 265 mgd, with 184 mgd allocated to wholesale customers and 81 mgd allocated to retail customers.<sup>11</sup> The remaining 20 mgd of demand would be met through water conservation, recycling, and groundwater, with 10 mgd provided by wholesale customers and 10 mgd provided by local projects within San Francisco. The 10 mgd

---

<sup>8</sup> Demand-side management involves programs that discourage water use and encourage conservation, with the objective of reducing overall water demand.

<sup>9</sup> WSAS, p. 8.

<sup>10</sup> SFPUC, *2005 Urban Water Management Plan for the City and County of San Francisco*, December 2005, pp. 38-40. A copy of this study is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case File 2008.0021E.

<sup>11</sup> WSAS, pp. 9-10.

of local supply committed to by the SFPUC upon adoption of the Phased WSIP would be provided through development of the local water supply improvements discussed below.

### **Water Treatment Capacity**

Water from the Hetch Hetchy system is delivered to customers without filtration. Water from the Alameda system is treated at the Sunol Valley Water Treatment Plant (WTP), located in Alameda County. Peninsula system water and any Hetch Hetchy or Alameda system water stored in Peninsula reservoirs is treated at the Harry Tracy WTP, located in northern San Mateo County. These treatment plants have existing treatment capacities of 160 mgd and 120 mgd, respectively. To ensure treatment capacity into the future, the SFPUC is planning to upgrade the Sunol Valley WTP to reliably treat 160 mgd and increase the plant's storage capacity of treated water. The SFPUC is also currently designing an expansion of the Harry Tracy WTP to reliably deliver 160 mgd, which would increase the total treatment capacity of the RWS to 320 mgd. These projects would further the delivery reliability goals identified by the SFPUC as part of the Phased WSIP by allowing the SFPUC to deliver water to meet demands during maintenance and emergency supply in the event of loss of the Hetch Hetchy system supply. In addition, the SFPUC has initiated construction of the Tesla advanced disinfection treatment facility in Tracy, California, to provide advanced disinfection of water from the Hetch Hetchy system.

### **Water Shortage and Dry-Year Planning**

To ensure that water could be delivered continuously throughout a drought, the SFPUC has adopted a drought planning sequence and associated operating procedures that trigger different levels of water delivery reductions relative to the volume of water stored in SFPUC reservoirs.

Each year, during the snowmelt period, the SFPUC evaluates the amount of total water storage expected to occur throughout the RWS. If this evaluation finds the projected total water storage to be less than a level sufficient to provide sustained deliveries, the SFPUC may impose delivery reductions or rationing. The amount of reduction has been established in contractual agreements between the SFPUC and its customers in the Water Shortage Allocation Plan. The SFPUC has adopted the Retail Water Shortage Allocation Plan to formalize the three-stage program of action to be taken in San Francisco. During a shortage of between 5 to 10 percent (Stage 1), SFPUC retail customers would experience no reduction in deliveries, but the SFPUC would issue a voluntary rationing request to customers, alert customers to water supply conditions, remind them of existing water use prohibitions, and provide education on, and possible acceleration of, incentive programs. For a shortage of between 10 to 20 percent (Stage 2), retail customers would experience a 1.9 percent reduction in retail deliveries. During Stage 2, all Stage 1 measures would be implemented, customers would receive a specific allotment of water, and if a customer's water use goes above their allotment, they would be subject to an excess use flow restrictor device and shut-off of water. For shortages in excess of 20 percent (Stage 3), all Stage 2



measures and additional reductions in retail allotments would be implemented, as determined by the SFPUC.

### Current and Future Water Supplies

As discussed above on pp. II.A.4 – II.A.5, the Phased WSIP allocates 81 mgd to retail customers. In addition, approximately 3.5 mgd of groundwater is obtained from local groundwater basins in San Francisco for the zoo and Golden Gate Park, and in the Castlewood Community located in Alameda County. Per the Phased WSIP, an additional 10 mgd would be provided from local groundwater and recycled water projects and from conservation measures that reduce demand. Table II.A.1 provides an estimate of retail water supplies from 2010 through 2030. As shown in the table, water supply is projected to increase from 84.5 mgd in 2010 to 94.5 mgd in 2015 (at completion of the WSIP projects) and to remain at that level through 2030.

**Table II.A.1: SFPUC Estimated Retail Water Supplies, 2010–2030 (mgd)**

Water Supply Sources	2010	2015	2020	2025	2030
<b>Current Surface Water Supply Sources</b>					
SFPUC RWS (Surface water: Tuolumne River, Alameda Creek & Peninsula Watersheds)	81.0	81.0	81.0	81.0	81.0
<b>Current Groundwater Sources</b>					
Groundwater (In-City Irrigation Purposes)	2.5	0.5	0.5	0.5	0.5
Groundwater—Other Retail Users	1.0	1.0	1.0	1.0	1.0
Groundwater: Treated for Potable—Previously Used for In-City Irrigation Purposes	0.0	2.0	2.0	2.0	2.0
<i>Groundwater Subtotal</i>	<i>3.5</i>	<i>3.5</i>	<i>3.5</i>	<i>3.5</i>	<i>3.5</i>
<b><i>Current Water Supply Subtotal</i></b>	<b><i>84.5</i></b>	<b><i>84.5</i></b>	<b><i>84.5</i></b>	<b><i>84.5</i></b>	<b><i>84.5</i></b>
<b>Future Water Supply Sources</b>					
Groundwater Development: Potable from SF GWSP (Westside Groundwater Basin)	0.0	2.0	2.0	2.0	2.0
Recycled Water Expansion Irrigation	0.0	4.0	4.0	4.0	4.0
Supply Conservation Program	0.0	4.0	4.0	4.0	4.0
<i>WSIP Supply Subtotal</i>	<i>0.0</i>	<i>10.0</i>	<i>10.0</i>	<i>10.0</i>	<i>10.0</i>
<b><i>Total Retail Supply (Current and WSIP Supplies)</i></b>	<b><i>84.5</i></b>	<b><i>94.5</i></b>	<b><i>94.5</i></b>	<b><i>94.5</i></b>	<b><i>94.5</i></b>
<i>Notes:</i> mgd = million gallons per day SF GWSP = San Francisco Groundwater Supply Project WSIP = Water System Improvement Program					

Source: PBS&J, *Final Water Supply Availability Study*, October 2009



### Current and Future Water Demand

To update the water supply and demand estimates provided in the 2005 update of the UWMP, the SFPUC developed a *Water Supply Availability Study*. The study incorporates new water supply information (per the Phased WSIP) and generates new estimates of future water demand for San Francisco. The future water demand estimates are based on the most current population and employment estimates, which include other major development proposals not anticipated in the 2005 UWMP, including the proposed Parkmerced Project.

To update future water demand, the *Water Supply Availability Study* compared the estimates of residential households and employees used in the 2005 UWMP with new population and employment forecasts provided by the San Francisco Planning Department, which were designed to closely match the recently adopted Association of Bay Area Governments *Projections 2009* target and take into account local knowledge of projects currently in various stages of the entitlement process. Updated water demand estimates were then generated. These updated estimates included the increment of future growth that was not previously included in the 2005 UWMP estimates.

Estimates of water demand for major development proposals<sup>12</sup> in San Francisco were based on information provided by project proponents.

Table II.A.2 provides an estimate of total SFPUC Retail Water Demands from 2010 through 2030, incorporating the most recent new residential development estimates from 2015 through 2030 and assuming some development not previously included in the 2005 UWMP estimates. Total retail water demand, including demand from the reasonably foreseeable development projects in the Corridor Study area, is estimated to increase from 91.81 mgd in 2010 to approximately 93.42 mgd by 2030.

### Water Distribution System

San Francisco's water supply is delivered to the City in several major pipelines and stored in reservoirs located within the City. The City's internal distribution system is divided into the Eastside (roughly from Twin Peaks to the Bay) and the Westside (roughly from Twin Peaks to the ocean) systems. Water delivery to the Eastside of the City's distribution system is fed by two pipelines that terminate at University Mound, located the southeastern corner of San Francisco. Water delivery to the Westside, which includes the Corridor Study area, is fed by two pipelines and stored in Sunset Reservoir and Merced Manor Reservoir, located in the southwestern area of

---

<sup>12</sup> Parkmerced Project, Candlestick Point-Hunters Point Shipyard Phase II Project, and Treasure Island-Yerba Buena Island Redevelopment Plan.

San Francisco. Several smaller reservoirs, in addition to storage tanks and pumps, provide water to individual distribution zones based on elevation.

All of the reasonably foreseeable development project sites, except the Arden Wood and 1150 Ocean (Balboa) sites, are within the Sunset Reservoir zone. Arden Wood is on the boundary of the Sunset and Sutro zones, while 1150 Ocean is served by the Sutro Reservoir.<sup>13</sup>

**Table II.A.2: SFPUC Estimated Average Annual Retail Water Demand**

Users, Facilities, and Entities	Projected Water Demand (mgd)				
	2010	2015	2020	2025	2030
San Francisco Residential (Single- and Multiple-Family)	44.70	43.80	43.20	42.90	42.90
New San Francisco Residential (Generated by Projects and Incremental Growth)	—	0.47	0.95	1.42	1.89
<i>Subtotal</i>	<i>44.70</i>	<i>44.27</i>	<i>44.15</i>	<i>44.32</i>	<i>44.79</i>
San Francisco Non-Residential - Business/Industrial	30.21	30.52	30.83	31.14	31.73
<i>Subtotal</i>	<i>74.91</i>	<i>74.79</i>	<i>74.98</i>	<i>75.46</i>	<i>76.52</i>
Unaccounted-for System Losses	7.30	7.30	7.30	7.30	7.30
<i>Subtotal</i>	<i>82.21</i>	<i>82.09</i>	<i>82.28</i>	<i>82.76</i>	<i>83.82</i>
Other Retail Demands	4.90	4.90	4.90	4.90	4.90
Lawrence Livermore Laboratory; Groveland Community Services District	1.20	1.20	1.20	1.20	1.20
City Irrigation	2.50	2.50	2.50	2.50	2.50
Castlewood Community	1.00	1.00	1.00	1.00	1.00
<b><i>Total Retail Demand</i></b>	<b><i>91.81</i></b>	<b><i>91.69</i></b>	<b><i>91.88</i></b>	<b><i>92.36</i></b>	<b><i>93.42</i></b>
<i>Notes:</i> mgd = million gallons per day Numbers are rounded according to standard rounding practices and may not add up due to hidden decimals.					

Source: PBS&J, *Final Water Supply Availability Study*, October 2009

### WSIP Reliability Improvements

Much of San Francisco's water delivery infrastructure is aged and in need of repair. Built in the early 1900s, many parts of the system are nearing the end of their working life. To protect the integrity of the water delivery system, in 2002 the SFPUC initiated the \$4.6-billion Water Supply Improvement Program (WSIP) to improve the regional system with respect to water quality,

<sup>13</sup> Hydroconsult Engineers, Inc., *Technical Memorandum, 19<sup>th</sup> Avenue Corridor Study Area – Cumulative Utilities Analysis*, January 14, 2010 (hereinafter "Hydroconsult Engineers"), p. 3. A copy of this memo is available for public review and the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case File 2008.0021E.

seismic response, water delivery, and water supply to meet water delivery needs in the service area through the year 2030.

Several regional facility improvement projects are planned within the Corridor Study area. These projects include the Sunset Reservoir upgrades recently completed, and upgrades to the Sutro Reservoir and the Lake Merced Pump Station. These improvements are not planned to change the supply of water available, but to improve delivery reliability. Construction of these facilities would result in typical temporary increases in truck traffic, dust, and noise in the immediate vicinity of each project.

## **19TH AVENUE CORRIDOR STUDY CONCLUSIONS**

Buildout of the reasonably foreseeable development projects identified in the Corridor Study area is estimated to increase the City's population by about 16,850 persons by 2030. These projects would include about 7,375 residential units, 460,000 gsf of retail uses, 834,000 gsf of institutional/educational uses, 80,000 gsf of office uses, 214,000 gsf of community facilities, and an eight-screen movie theater.

### **Water Supply**

The reasonably foreseeable development projects identified in the Corridor Study area would increase the number of residential units in the Corridor Study, thereby increasing the volume of potable water needed to serve the population. Table II.A.3 shows the estimated water demands for each of the reasonably foreseeable projects. As shown in the table, full implementation of the projects would increase water demand from 1.12 million gallons per day (mgd) to 1.65 mgd, an increase of approximately 47 percent over existing demand on these sites.<sup>14</sup>

The current water demand of 1.12 mgd represents approximately 1.2 percent of San Francisco total retail potable water demand of 90 mgd. The cumulative demand of 1.65 mgd at full build-out, which would not occur until approximately 2030, would represent approximately 1.8 percent of San Francisco's total retail potable water demand.

To assess the adequacy of San Francisco's current and projected future water supplies to meet estimated future demand, including the demand associated with the reasonably foreseeable projects and other projected future growth (e.g., background growth from the Association of Bay Area Governments projections), the WSAS included a comparison of retail water supply and demand. Table II.A.4 provides a comparison of the projected future retail water supply and demand in varying hydrologic conditions over the SFPUC's 20-year planning horizon through 2030.

---

<sup>14</sup> Hydroconsult Engineers, p. 5.



**Table II.A.3: Estimated Water Demands by Project (mgd)**

Project	Existing	New	Total
Parkmerced	0.71	0.29	0.98
San Francisco State University	0.30	0.10	0.40
800 Brotherhood Way	0.00	0.02	0.02
77-111 Cambon	0.003	0.02	0.02
700 Font (San Francisco Unified School District)	0.01	0.03	0.04
Stonestown	0.09	0.02	0.12
Arden Wood	0.00	0.02	0.02
1150 Ocean (Balboa Plan- Kragen Auto Site)	0.00	0.02	0.02
<b>TOTAL</b>	<b>1.12</b>	<b>0.52</b>	<b>1.65</b>

Source: Hydroconsult Engineers, January 14, 2010

The City's water supply is sufficient to meet projected demand for anticipated growth through 2030 in all but the second and third year of a multiple dry-year period.

Thus, during multiple dry-year periods, the SFPUC would need to implement the provisions of the demand management and water conservation measures discussed on p. II.A.4, which could include voluntary rationing or the curtailment of retail deliveries. With the implementation of these measures during multiple dry-year periods, existing and projected future water supplies would be sufficient to meet estimated future water demand.

### Water Infrastructure

Each of the reasonably foreseeable projects would install their own internal water distribution infrastructure. Implementation of the reasonably foreseeable projects would not result in a substantial increase in water delivery from the SFPUC. No projects for increasing the size of any reservoirs or water treatment facilities would be necessary.<sup>15</sup> The existing SFPUC infrastructure for delivering water to the project sites is sufficient to meet the needs of the reasonably foreseeable projects.

<sup>15</sup> Chi Yu, SFPUC Water Enterprise, CDD Engineering, email to Beth Goldstein, Hydroconsult Engineers, Inc., August 31, 2009..



**Table II.A.4: Comparison of Projected Water Supply and Demand for Normal, Single Dry, and Multiple Dry Years (mgd)**

Retail Supply and Demand		Normal Year	Single Dry Year	Multiple Dry-Year Event		
				Year 1	Year 2	Year 3
2010	RWS Supply	81.00	81.00	81.00	79.50	79.50
	Groundwater Supply	3.50	3.50	3.50	3.50	3.50
	<b>Total Retail Supply</b>	<b>84.50</b>	<b>84.50</b>	<b>84.50</b>	<b>83.00</b>	<b>83.00</b>
	Total Retail Demand	91.81	91.81	91.81	91.81	91.81
	Surplus/(Deficit) <sup>a</sup>	(7.31)	(7.31)	(7.31)	(8.81)	(8.81)
2015	RWS Supply	81.00	81.00	81.00	79.50	79.50
	Groundwater	3.50	3.50	3.50	3.50	3.50
	WSIP Supply Sources	10.00	10.00	10.00	10.00	10.00
	<b>Total City Supply</b>	<b>94.50</b>	<b>94.50</b>	<b>94.50</b>	<b>93.00</b>	<b>93.00</b>
	Total Retail Demand	91.69	91.69	91.69	91.69	91.69
	Surplus/(Deficit)	2.81	2.81	2.81	1.31	1.31
2020	RWS Supply	81.00	81.00	81.00	79.50	79.50
	Groundwater	3.50	3.50	3.50	3.50	3.50
	WSIP Supply Sources	10.00	10.00	10.00	10.00	10.00
	<b>Total City Supply</b>	<b>94.50</b>	<b>94.50</b>	<b>94.50</b>	<b>93.00</b>	<b>93.00</b>
	Total Retail Demand	91.88	91.87	91.87	91.87	91.87
	Surplus/(Deficit)	2.62	2.63	2.63	1.12	1.12
2025	RWS Supply	81.00	81.00	81.00	79.50	79.50
	Groundwater	3.50	3.50	3.50	3.50	3.50
	WSIP Supply Sources	10.00	10.00	10.00	10.00	10.00
	<b>Total City Supply</b>	<b>94.50</b>	<b>94.50</b>	<b>94.50</b>	<b>93.00</b>	<b>93.00</b>
	Total Retail Demand	92.36	92.36	92.36	92.36	92.36
	Surplus/(Deficit)	2.14	2.14	2.14	0.64	0.64
2030	RWS Supply	81.00	81.00	81.00	79.50	79.50
	Groundwater	3.50	3.50	3.50	3.50	3.50
	WSIP Supply Sources	10.00	10.00	10.00	10.00	10.00
	<b>Total City Supply</b>	<b>94.50</b>	<b>94.50</b>	<b>94.50</b>	<b>93.00</b>	<b>93.00</b>
	Total Retail Demand	93.42	93.42	93.42	93.42	93.42
	Surplus/(Deficit)	1.08	1.08	1.08	(0.42) <sup>b</sup>	(0.42) <sup>b</sup>

**Notes:**

mgd = million gallons per day

RWS = Regional Water System

WSIP = Water System Improvement Program

<sup>a</sup> The deficit shown in 2010 is the result of reducing the RWS supply to 81 mgd as per the Phased WSIP Variant, without full development of the additional 10 mgd of new supplies. 10 mgd of new sources would be developed and available for use in San Francisco by 2015. However, San Francisco retail demand is currently lower than projected (Fiscal Year 07/08 use was 83.9 mgd). If San Francisco retail demands exceed the available supply of 84.5 mgd between 2010 and 2015, the Water Supply Agreement allows the San Francisco Public Utilities Commission (SFPUC) to purchase additional water from the RWS. If combined retail and wholesale deliveries exceed 265 mgd, the SFPUC retail customers would be required to pay an Environmental Surcharge for deliveries over 81 mgd. (Total RWS deliveries in Fiscal Year 07/08 were 256.7 mgd.)

<sup>b</sup> Deficit occurs in Year 2 and Year 3 of multiple dry-year event, SFPUC implements its Drought Year Water Shortage Contingency Plans - RWSAP and WSAP would be required to balance supply and demand under this projected shortfall.

Source: PBS&J, *Final Water Supply Availability Study*, October 2009



## **B. WASTEWATER COLLECTION, TREATMENT AND STORMWATER MANAGEMENT**

### **EXISTING WASTEWATER COLLECTION AND TREATMENT CONDITIONS**

San Francisco's wastewater system is a combined system that conveys and treats both sanitary sewage and stormwater. Large underground structures (storage/transport facilities [boxes]) collect sewage and stormwater and transport these flows, via pump stations, to treatment facilities.

#### **Wastewater Collection**

The City's wastewater collection system is divided into the Bayside (roughly from Twin Peaks to the Bay) and the Westside (roughly from Twin Peaks to the ocean) drainage basins. The Corridor Study area is located within the Westside drainage basin. The Westside system, which serves an area of about 9,000 acres, was completed in 1994 and includes the Richmond, Westside, and Lake Merced sewers, the Westside Pump Station (WSS), the Oceanside Water Pollution Control Plant (OSP), the Southwest Ocean Outfall (SWOO), and seven combined sewer overflow near-shore discharge points.

With the exception of the Arden Wood site, the reasonably foreseeable development sites are all within the Lake Merced basin, which is served primarily by the Ingleside sewer that flows to the Lake Merced tunnel and ultimately to the Westside Transport/Storage box (WST). The Arden Wood development site is located in the Sunset basin and is served primarily by the Vicente sewer that flows directly to the WST.

#### **Wastewater Treatment**

During dry weather, all sanitary sewage (a daily average of roughly 16 million gallons per day [mgd]) is pumped from the WST to the OSP and treated to secondary effluent<sup>1</sup> quality before flowing by gravity to the Ocean via the SWOO. During light rainfall, all flows continue to receive this level of treatment (up to 43 mgd). Combined storm and sanitary flows exceeding 43 mgd, and up to 65 mgd, receive primary treatment<sup>2</sup> and disinfection at the OSP. Combined flows exceeding the treatment plant maximum of 65 mgd and up to 110 mgd receive the equivalent of primary treatment without disinfection in the WST sewer before being pumped for Ocean disposal through the SWOO. The treatment in the WST is provided by decanting the combined flow under

---

<sup>1</sup> Secondary effluent has undergone treatment to remove floatable materials (such as oil and grease), settleable materials (such as sand and gravel), and a substantial portion of the organic compounds in the waste. In San Francisco, it is treated with chlorine to kill bacteria and the chlorine is removed before the effluent is discharged.

<sup>2</sup> Primary treatment removes floatable and settleable materials.

a baffle and over a weir. This process keeps settleable and floatable material from being discharged to the SWOO.

Overflows to Ocean Beach occur at seven locations, when the WSS wet weather pumps have reached their capacity. The Westside system is designed and operated to average eight combined sewer overflows annually. In the years 1998-2003, the Westside system averaged seven combined sewer overflows per year.<sup>3</sup>

Treated wastewater from the Oceanside Water Pollution Control Plant is discharged in the Pacific Ocean 4.5 miles off shore through the Southwest Ocean Outfall. Wastewater is discharged from the City's wastewater treatment plants under a National Pollutant Discharge Elimination System permit issued to the SFPUC by the Regional Water Quality Control Board, San Francisco Bay Region.

## 19<sup>TH</sup> AVENUE CORRIDOR STUDY CONDITIONS

### Construction

During the various construction phases of the reasonably foreseeable development projects, excavation and grading on the development sites would require temporary removal of existing vegetation and pavements and disturbance of surface soils. Exposed soils would be exposed to stormwater runoff, potentially causing erosion and entrainment of sediments in the runoff. If not managed properly, the sediments would be carried in water courses and, as all runoff currently drains to the City's combined sewer system, cause sediments to be discharged to the sewer system where they would reduce the capacity of the sewer lines, potentially causing sewer overflows.

The potential for releases of fuels, oils, paints, and solvents is present at most construction sites. Once released, these chemicals would flow or be carried by stormwater runoff, wash water, and dust control water to the sewer, potentially reducing the quality of the receiving waters if they could not be removed in the treatment process at the Oceanside Water Pollution Control Plant.

The *San Francisco Public Works Code* regulates the quantity and quality of discharges to the combined sewer system. These requirements include Best Management Practices (BMPs) for control of sediments and erosion. Each project sponsor would implement a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the City's Construction Site Runoff Pollution Prevention Procedures and include, at a minimum, the BMPs specified. The SWPPPs would include provision for facilities and practices to prevent spills of fuels and chemicals and to

---

<sup>3</sup> Hydroconsult Engineers, Inc., *Technical Memorandum, 19<sup>th</sup> Avenue Corridor Study Area – Cumulative Utilities Analysis*, January 14, 2010 (hereinafter "Hydroconsult Engineers"), p. 8. A copy of this memo is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case File 2008.0021E.



control the release of chemicals to surface water. Implementation of the SWPPPs with specified BMPs would reduce pollution of surface water throughout the construction phases of the proposed projects.

## **Operation**

### Stormwater Runoff

The construction of new buildings on the development sites is not expected to increase the total amount of stormwater runoff in the Corridor Study area. Table II.B.1 summarizes the existing and proposed total impervious area anticipated on the development sites. The “net change” column represents the effective change in impervious area contributing runoff to the combined sewer system. In the case of Parkmerced and SFSU, the overall site impervious surface area would increase; however, stormwater runoff from these projects is proposed to be diverted away from the combined sewer system such that a net decrease in runoff would be achieved. The individual development program for the Parkmerced Project would result in an increase of 4.56 acres in total impervious area due to more development on that site; however, the proposal includes diversion of 100 percent of the runoff from the combined sewer, resulting in a substantial decrease in area contributing to the flows in the combined sewer. SFSU anticipates an 18 percent net reduction in stormwater runoff into the combined sewer due to diversion of runoff from the combined sewer system<sup>4</sup> based on a 2 percent increase in total runoff from increased in impervious area, and a 20 percent decrease in runoff diverted to the combined sewer.

During operation of the reasonably foreseeable developments, new and intensified land uses at the project sites would result in increased vehicle use and potential discharge of associated pollutants to paved surfaces. Leaks of fuel or lubricants, tire wear, and fallout from vehicle exhaust would contribute petroleum hydrocarbons, heavy metals, and sediment to the pollutant load in stormwater runoff. Runoff from landscaped areas would contain nutrients. These pollutants would be carried to the combined sewer system and flow to the Oceanside Water Pollution Control Plant. Treatment is expected to remove these pollutants to the levels required in the City’s National Pollutant Discharge Elimination System permit.

Runoff from San Francisco buildings, sidewalks, parking areas, and streets has typically been directed to storm drains, where it flows to the combined sewer system. In an effort to reduce the amount of stormwater runoff discharged to the City’s sewer system, the SFPUC is developing a policy to require that new and redevelopment projects in San Francisco employ green technologies for managing stormwater runoff. These technologies include bioswales, biogutters,

---

<sup>4</sup> Hydroconsult Engineers, pp. 12-13.

**Table II.B.1: Predicted Changes in Impervious Surface (by Project in acres)<sup>1</sup>**

	PRE DEVELOPMENT				POST DEVELOPMENT			
	Total Area (acres)	% impervious	Impervious Area (acres)	% Contributing to Combined Sewer	Total Area (acres)	% impervious	Impervious Area (acres)	% Contributing to Combined Sewer
Parkmerced	152.0	53%	80.6	100	152.0	56%	85.1	0 <sup>2</sup>
SFSU**	144.0	61%	87.84	100	144.0	63%	90.72	80 <sup>3</sup>
800 Brotherhood	7.7	1%	0.08	100	7.7	70%	5.4	100
77-111 Cambon	2.8	85%	2.38	100	2.8	100%	2.8	100
700 Font	2.5	62%	1.6	100	2.5	50%	1.3	100
Stonestown	40.7	86%	35.0	100	40.7	86%	35.0	100
445 Wawona <sup>4</sup>	4.8	11%	0.53	100	4.8	49%	2.4	100
1150 Ocean	1.84	100%	1.84	100	1.84	95%	1.75	100

**Notes:**

<sup>1</sup> Changes in the amount of impervious surface were estimated based upon aerial photos and available site plans.

<sup>2</sup> Assumes 100 percent of runoff from the Parkmerced site would be diverted from the combined sewer system.

<sup>3</sup> San Francisco State University total runoff would increase by 2 percent but discharge to the combined sewer system would be reduced by 20 percent for a net reduction of 18 percent.

<sup>4</sup> Developable area on the 445 Wawona (Arden Wood) site excludes a planned 2.8 acre conservation area.

Source: Hydroconsult Engineers, Inc.

and use of pervious pavements. When these measures are employed, some runoff from buildings and other impervious surfaces is allowed to infiltrate into the ground and is not discharged to the storm drain. Thus, when sufficient green stormwater management facilities are employed, the amount of runoff leaving a site may be decreased, even though the impervious area of the site, such as building footprints, may be increased. The Parkmerced and SFSU projects would both incorporate green stormwater management measures to such a degree that, after full project buildout, runoff from the sites to the combined sewer would be reduced.

The Parkmerced Project would direct 100 percent of stormwater runoff away from the combined sewer system, and SFSU would direct about 18 percent of stormwater runoff away from the combined sewer system. Although the total runoff from the reasonably foreseeable development projects would increase, the portion of that runoff directed to the combined sewer system would decrease, which would reduce the volume of wet weather flows in the Westside system and reduce the potential for overflows.

### Flooding

The combined sewer system is designed to carry both sanitary sewage and stormwater runoff. Therefore, dry weather flows use only a fraction of the typical sewer's capacity. Most sewers, however, are designed to carry the rainfall associated with up to the 5-year storm<sup>5</sup>, which can cause flooding to occur during storms with intensities greater than the 5-year storm. General

<sup>5</sup> The 5-year storm is a storm event that has a 20-percent chance of occurring, or, on a long-term average, occurs once every five years.

development and growth in San Francisco has resulted in more residential and commercial users of the combined sewer system than anticipated for some portions of the system, using the wastewater capacity meant to carry wet weather flows. As a result, some of the City's sewers no longer have adequate capacity to convey the 5-year storm during heavy rainfall, resulting in flooding in some locations. Recent improvements to the Vicente sewer and Ingleside sewer (at its upstream end along Ocean Avenue) have increased the capacity of these sewers upstream, allowing more flow to reach the downstream portions and thus reducing the margin of safety designed into the size of the sewers. Any additional flow into these sewers during wet weather will further reduce the margin of safety. The Parkmerced and SFSU projects have the potential to improve the performance of the sewers in wet weather because both developments plan to direct stormwater runoff away from the combined sewer system. All other reasonably foreseeable development projects would likely increase the amount of impervious surface, and therefore are assumed to contribute stormwater runoff to the sewers. Development of these projects could increase the potential for flooding during periods of heavy rainfall.<sup>6</sup>

A portion of the Arden Wood site contains a vegetated depression/swale. This site sits above a medium-sized trunk sewer that crosses the Arden Wood site from the northeast to the southwest, and that passes under this depression area. Stormwater runoff likely has difficulty draining from this depression. There is also the possibility that there could be backflow from the combined sewer at this location. Future development of the Arden Wood site should investigate this localized flooding potential and design appropriate improvements. It is possible that such improvements would extend off-site, but they would not be expected to cause additional flooding downstream.

#### Sewer Overflows

Because both dry and wet weather flows are carried in the same pipes, increasing the volume of either flow can affect the available storage, pumping, and treatment capacity of the combined system. During a large storm, both the primary and secondary treatment capacity of the treatment plant can be exceeded, resulting in releases from the combined overflow structures. Currently the Westside portion of the combined sewer system overflows approximately 6.8 times per year, on average, based on analysis in the Westside Planning Model for wastewater overflows.<sup>7</sup> While the total dry weather (sanitary) flows are expected to increase due to the proposed development projects, the combined sewer overflow frequency, duration, and volume are all expected to decrease from the existing 6.8 times per year on average to approximately 6.5 times per year on

---

<sup>6</sup> Hydroconsult Engineers, p. 15.

<sup>7</sup> Hydroconsult Engineers, pp. 15-16.



average with separation of wastewater and stormwater flows planned in the Parkmerced and SFSU projects.<sup>8</sup>

#### Wastewater Conveyance and Treatment

Existing wastewater and stormwater flows from the project sites are collected for treatment at the Oceanside Water Pollution Control Plant and are discharged to the Pacific Ocean. The reasonably foreseeable projects would increase the number of residential units and the amount of commercial and other non-residential space in the 19<sup>th</sup> Avenue Corridor, thereby increasing the volume of wastewater to be collected and treated.

Table II.B.2 shows the increases in wastewater volumes that would be generated by the reasonably foreseeable projects. Wastewater volumes would increase by 0.43 mgd, an increase of approximately 48 percent compared to existing wastewater flows from these sites. This increase in sanitary sewage due to the development of the reasonably foreseeable projects represents less than 3 percent of the average daily dry weather flow to the Oceanside Water Pollution Control Plant and roughly 1 percent of the plant's secondary treatment capacity.<sup>9</sup> The plant has the capacity to provide secondary treatment for up to 43 mgd. Therefore, sanitary sewage alone from the reasonably foreseeable projects would not exceed the capacity of the treatment plant or cause the plant to exceed any treatment requirements established in the National Pollutant Discharge Elimination System permit.

**Table II.B.2: Changes in Estimated Sanitary Sewage (mgd)**

Development Project Site	Existing Volume	Proposed Additional Volume	Total Volume
Parkmerced	0.64	0.26	0.90
San Francisco State University	0.15	0.05	0.20
800 Brotherhood Way	0.00	0.02	0.02
77-111 Cambon	0.003	0.02	0.02
700 Font (San Francisco Unified School District)	0.01	0.03	0.04
Stonestown	0.08	0.02	0.10
Ardenwood	0.00	0.01	0.01
1150 Ocean	0.00	0.02	0.02
<b>TOTAL</b>	<b>0.89 mgd</b>	<b>0.43 mgd</b>	<b>1.32 mgd</b>

Source: Hydroconsult Engineers, Inc., Technical Memorandum, 19<sup>th</sup> Avenue Corridor Study Area – Cumulative Utilities Analysis, January 14, 2010.

<sup>8</sup> Hydroconsult Engineers, Inc., *Technical Memorandum, 19<sup>th</sup> Avenue Corridor Study Area – Cumulative Utilities Analysis*, January 14, 2010, Table 4.2.

<sup>9</sup> Hydroconsult Engineers, p. 15.



## C. POLICE PROTECTION SERVICES

### EXISTING POLICE PROTECTION SERVICES CONDITIONS

The San Francisco Police Department (SFPD), headquartered at 850 Bryant Street, provides public safety services in the City and County of San Francisco, including the Corridor Study area. The SFPD consists of three Bureaus (Operations, Administrative Services, and Chief of Staff) and ten Districts located throughout the City. The SFPD employs approximately 2,300 sworn officers. Police services are made up of four basic activities: responding to citizens' requests for service, carrying out activities to promote order and detect or deter criminal behavior, conducting administrative tasks, and engaging in community policing. Community policing is intended to prevent and control crime, violence, and disorder through the development of relationships between the police and community residents, merchants, and other stakeholders.

#### Taraval Police District

The Corridor Study area is located within the SFPD's Taraval Police District. The district is bounded on the north by Lincoln Way (the southern boundary of Golden Gate Park); on the east by 7<sup>th</sup> Avenue, Laguna Honda Boulevard, Portola Drive, Miraloma Drive, Yerba Buena Avenue, Faxon Avenue, Ocean Avenue, and San Jose Avenue/Interstate 280; on the south by the San Mateo County line; and on the west by the Pacific Ocean. Based on Census 2000 data, the Taraval Police District includes a population of about 147,810 people (about 19 percent of the City total) and covers about 11 square miles (about 24 percent of the City's total land area).<sup>1</sup>

The Taraval Police District is the largest of the SFPD's ten police districts. The area is mostly residential and includes the Inner Parkside, Parkside, Outer Parkside, Forest Hill, West Portal, Lake Shore, Inner Sunset, Sunset, Outer Sunset, Balboa Terrace, St. Francis Wood, Monterey Heights, Ingleside Terrace, Ocean Beach, Great Highway, Lincoln Way, Merced Manor, Merced Heights, Stonestown, Pine Lake Park, Ocean View, Parkmerced, and San Francisco State University neighborhoods. Prominent commercial areas include the Irving Street, Noriega Street, Ocean Avenue, Taraval Street, and West Portal corridors, as well as the Lakeshore Plaza and Stonestown Galleria shopping centers. The district also contains about 45 public and private schools, San Francisco State University, and other public and private community facilities such as religious institutions, parks, recreation centers, libraries, and health clinics.

The district's station, the Taraval Police Station, is located at 2345 24<sup>th</sup> Avenue between Santiago and Taraval Streets. The Taraval Police District is divided into six car patrol sectors.<sup>2</sup> The three

<sup>1</sup> Public Safety Strategies Group, *San Francisco Police Department District Station Boundaries Analysis—Final Report*, May 13, 2008 (hereinafter referred to as “*Boundaries Analysis report*”), p. 28. Available online at [http://www.sfgov.org/site/uploadedfiles/controller/reports/SFPD\\_DSBAfinal\\_trnsmntl.pdf](http://www.sfgov.org/site/uploadedfiles/controller/reports/SFPD_DSBAfinal_trnsmntl.pdf).

<sup>2</sup> The 11.2-square-mile district is divided into car patrol sectors 311, 312, 313, 314, 315, and 316.

northern sectors (3I1, 3I2, and 3I3) are generally divided north/south by Sunset Boulevard, 19<sup>th</sup> Avenue, and 7<sup>th</sup> Avenue. Sector 3I5 is located south of Sloat Boulevard, west of Junipero Serra Boulevard, and north of the San Mateo County line. The two remaining sectors (Sectors 3I4 and 3I6) are east of Junipero Serra Boulevard, with one extending north from Holloway Avenue to Taraval Street and the other extending south from Holloway Avenue to the San Mateo County line. There are also eight foot patrol corridors in this district (Irving Street, Judah Street, Judah Street/La Playa, Portola Drive, West Portal, Taraval Street, Ocean Avenue, and Randolph/Broad Street).<sup>3</sup>

## Staffing

The SFPD does not have an adopted standard for the ratio of officers to population or developed acreage and bases its staffing levels on the number of service calls and crime incidents.<sup>4</sup> In 2007, the SFPD employed approximately 2,650 people, and approximately 2,370 of these employees were uniformed officers.<sup>5</sup> Authorized staffing at each District Station includes 1 captain, 4 lieutenants, and 16 sergeants, as well as members of the Patrol Division, who, together with the Traffic Division, make up the Field Operations Bureau. The Patrol Division is responsible for community policing throughout San Francisco by car and on foot. The number of patrol officers is based on the population and crime statistics reported within the District. The SFPD has over 65 beat patrol geographical areas.

Taraval Station personnel include district command staff, administrative officers, and patrol officers. In total, there are 120 sworn officers, up from the 94 sworn officers identified in 2007.<sup>6</sup> Officers are assigned to one of the six patrol sectors in the Taraval Police District. The number of officers on patrol varies by shift, and the shifts are staggered throughout the day.

The SFPD has increasingly focused its efforts on community policing strategies to improve public safety and empower residents to collaborate with police to improve neighborhoods. In the Taraval District, over 20 Neighborhood Watch Programs have been implemented, with calls for service dropping by approximately 75 percent in the Judah/La Playa neighborhood, for example.<sup>7</sup> In addition, there are eight beat areas with foot patrols<sup>8</sup> and special units like the Taraval Neighborhood Team, consisting of one sergeant and seven officers who work closely with

---

<sup>3</sup> Public Safety Strategies Group, *Foot Patrol Evaluation Report*, April 2008, Map 18, p. 90.

<sup>4</sup> San Francisco Police Department, [http://www.sfgov.org/site/police\\_index.asp?id=19971](http://www.sfgov.org/site/police_index.asp?id=19971), accessed December 3, 2009.

<sup>5</sup> The SFPD had 2,449 budgeted positions for uniformed officers. Of these budgeted positions, 2,374 (or approximately 97 percent) were filled.

<sup>6</sup> Commander Kitt Crenshaw, Response to Parkmerced Request for Information, November 24, 2009 (hereinafter referred to as "SFPD RFI"); Public Safety Strategies Group, pp. 46, D4. A copy of the SFPD RFI is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case File No. 2008.0021E.

<sup>7</sup> SFPD, *San Francisco Community Policing a Report on Current Efforts*, November 2006, p. 13.

<sup>8</sup> Beat officers patrol the same beat on the same watch for at least a year.

community members to minimize crime and violence. The SFPD also operates several community-center-based programs for youth.

### **Current Police Activity**

The SFPD's *Boundaries Analysis* report stated that crime patterns in the City did not change significantly over the five-year period between 2002 and 2007. The report also states that the northeastern portion of the City (the Northern, Central, Tenderloin, and Southern Police Districts) and certain sections in the middle of the City (the Mission Police District) continue to have the highest incidences of crime while the outlying areas of the City continue to place the least demand on police services.

Criminal incidents recorded by the SFPD are organized according to the severity of the crime. Part I crimes include aggravated assault, arson, auto boosting, burglary, homicide, larceny, motor vehicle theft, rape, and robbery. Part II crimes range from carrying weapons to receiving stolen property. They include embezzlement, forgery, other (non-aggravated) assaults, disorderly conduct, sex offenses, and other crimes. According to SFPD records, a total of 3,340 Part I crimes and 3,324 Part II crimes were reported in the Taraval Police District in 2007. District-specific Part I crimes accounted for approximately 8 percent of Citywide Part I crimes (43,690 incidents reported in total), and district-specific Part II crimes accounted for approximately 7 percent of Citywide Part II crimes (46,822 incidents in total).<sup>9</sup>

In recent years, the Taraval Police District responded to a number of vehicular fatalities. In 2009, Taraval officers wrote over 6,411 moving violations targeting major corridors including 19<sup>th</sup> Avenue and other parts of the district. Traffic calming plans have been implemented in conjunction with Caltrans and Muni.

### **Response Time**

The type of police response varies according to the nature and urgency of the call. In San Francisco, the following four call priorities have been established:

- Priority A calls are defined as involving a "Life-threatening emergency." These calls are the highest priority.
- Priority B calls are defined as involving "Potential for harm to life and/or property." These calls are the second priority.
- Priority C calls are defined as involving "Crime committed with no threat to life or property. Suspect left crime scene." These calls are third in priority.
- Priority I calls are "Information only broadcast, e.g. public disturbance. Caller wants to remain anonymous."

---

<sup>9</sup> San Francisco Police Department, *2007 Annual Report*.



According to the SFPD 2007 *Annual Report*, the Taraval Police District received 4,463 Priority A calls, 10,410 Priority B calls, and 9,512 Priority C calls, for a total of 24,385 calls for service. The Taraval Police District also dealt with a total of 29,385 on-view (i.e., on-site) incidents that required an officer-initiated response.<sup>10</sup> In total, the Taraval Police Station handled approximately 7 percent of all calls for service in the city, with the most frequent call for service in the District being traffic stops and bus inspections.

In the SFPD's "Performance Measures" set out as part of the City's 2008-2009 budget, the SFPD established the following target response times for 2008-2009:

- Priority A Calls – 4.4 minutes
- Priority B Calls – 8.3 minutes
- Priority C Calls – 10.8 minutes

Using 2007 data from the Computer Aided Dispatch System, the average response times for the Taraval Police District (measured from the time the call was dispatched until the unit arrived) were 3.4 minutes for Priority A calls, 11.1 minutes for Priority B calls, and 10.6 for Priority C calls. The 2007 Citywide average response times reported in the *Boundaries Analysis* report were 4.36 minutes for Priority A calls, 8.021 minutes for Priority B calls, and 11.37 for Priority C calls. While, in general, police department response times vary depending on a number of factors, including types of calls received and proximity of the nearest vehicle, response times in the vicinity of the Corridor Study area generally meet targets. Response time targets for Priority B calls, however, are not currently met.

## Facilities

The *Boundaries Analysis* report identifies improvement needs at most existing stations:

The stations are either at capacity or too small for the number of personnel assigned, storage is lacking, locker rooms are inadequate, and technology is outdated and/or non-existent. ... [Most of the] stations, despite being fairly new or updated, do not fully meet the needs of the SFPD. Station facilities are small, locker rooms do not provide adequate space, juvenile facilities are lacking, interview and report-writing rooms compromise productivity, and facilities present safety and security concerns.<sup>11</sup>

The report identified particularly pressing shortcomings at two stations (Central and Southern), and recommended that those two stations be replaced. With regard to the Taraval Police Station, the *Boundaries Analysis* report notes:

---

<sup>10</sup> San Francisco Police Department, *2007 Annual Report*.

<sup>11</sup> *Boundaries Analysis* report, pp. 20 and 27.



Taraval Police Station is a newly remodeled station; however, the facility has little room for growth and staffing increases and lacks a secure lot area for police vehicles.<sup>12</sup>

The report, however, does not call for replacement of the Taraval Police Station, which was remodeled in 1996.

### 19<sup>th</sup> AVENUE CORRIDOR STUDY CONCLUSIONS

The reasonably foreseeable development projects would be in an area of the Taraval Police District that is already being served by the SFPD. Buildout of the development projects would not be expected to increase police response times by placing new development in areas that are inaccessible or distant from an existing police station or existing neighborhood patrols.

Successful implementation of the reasonably foreseeable development projects in the Corridor Study area would result in an increase of about 16,850 residents over the next 20 years (to 2030). This increase does not exceed the projected population increase anticipated by 2025 for southwest San Francisco in the *Boundaries Analysis* report.<sup>13</sup> The development projects would likely be served by the Taraval Police Station, or through a consolidated Taraval/Ingleside “Southwest” district as recommended in the *Boundaries Analysis* report.<sup>14</sup>

Continued demand for police protection service in the Taraval District is expected to occur as the residences and commercial space in the development projects are built and occupied over the 20-year analysis period and may result in a demand for additional SFPD staff. Although the *Boundaries Analysis* report did not indicate the need to construct new facilities or expand existing facilities to serve anticipated cumulative growth, the SFPD, in a separate survey, identified the potential need for new satellite facilities or expansion of existing facilities to serve this anticipated cumulative growth in population within the Corridor Study area.<sup>15</sup> While no planning for new or expanded facilities is under way, the SFPD may consider initiating planning for facility expansion in the future if the anticipated development projects are built and occupied.

---

<sup>12</sup> *Boundaries Analysis* report, Table 2, p. 20.

<sup>13</sup> *Boundaries Analysis* report, p. 31.

<sup>14</sup> *Boundaries Analysis* report, p. 9

<sup>15</sup> SFPD RFI.



## **D. FIRE PROTECTION AND EMERGENCY MEDICAL SERVICES**

### **EXISTING FIRE PROTECTION AND EMERGENCY MEDICAL SERVICE CONDITIONS**

The San Francisco Fire Department (SFFD) is responsible for protecting life and property throughout San Francisco from fires, natural disasters, and hazardous materials incidents.<sup>1</sup> The SFFD also provides unified emergency medical services in the City, including basic life support and advanced life support services. In addition, several privately operated ambulance companies are authorized to provide basic and advanced life support services. Water supply for fire suppression in San Francisco is provided by an auxiliary water supply system (AWSS). Water for the AWSS is distributed through a network of pipes drawing water from a collection of reservoirs<sup>2</sup>, pumping stations, and independent cisterns throughout the City. This system provides higher pressure than the domestic water system, allowing firefighters to direct water greater distances.

#### **Staffing**

The SFFD has approximately 1,700 firefighting and emergency personnel and consists of three divisions, divided into 10 battalions and 43 active stations located strategically throughout the City. Staffing at each station is determined based on the types of firefighting apparatuses each station maintains. Engines are staffed with one officer and three firefighters, and trucks are staffed with one officer and four firefighters.<sup>3</sup> Ambulances are staffed with a driver and one paramedic specialist who provides pre-hospital advanced medical and trauma care.

#### **Response Times**

Fire Stations are strategically located so that firefighters can reach emergencies in the surrounding area quickly. In San Francisco, response times are calculated from the time the dispatch is received and acknowledged at the station to the time the responding unit informs dispatch that it is on-scene. The SFFD target response time goals are 8 minutes for Code 1 (non-emergency) calls, 20 minutes for Code 2 (non life-threatening fire and medical emergencies) calls, and 4.5 minutes for Code 3 (life-threatening fire and medical emergencies) calls, the highest

---

<sup>1</sup> The mission of the SFFD is stated on the City and County of San Francisco Fire Department website at [www.sfgov.org/site/sffd\\_index.asp](http://www.sfgov.org/site/sffd_index.asp), accessed December 4, 2009. The mission statement also includes fire prevention education and goals for the work environment.

<sup>2</sup> The reservoir, just below the summit of Twin Peaks, is one of the primary water sources for the gravity-driven AWSS.

<sup>3</sup> The terms fire engine and fire truck represent different types of firefighting apparatus.

response priority. The SFFD currently falls within the 90<sup>th</sup> percentile for attainment of its response time goals.<sup>4</sup>

### **Fire Stations**

There are four fire stations located within the Corridor Study area that would be the first to respond to emergencies that occur on the reasonably foreseeable development project sites: Station 15, located at 1000 Ocean Avenue; Station 19, located at 390 Buckingham Way; Station 33, located at 8 Capital Avenue; and Station 39, located at 1091 Portola Drive.

Station 15 would be the first to respond to the 1150 Ocean Avenue site. Station 15 is equipped with an advanced life support engine, a medic unit, and truck company. Response times to this site from Station 15 are within the 5-minute range.<sup>5</sup>

Station 19 would be the first to respond to the Parkmerced, SFSU, 77-111 Cambon Drive, 700 Font Boulevard, and Stonestown development project sites. This station is equipped with an advanced life support engine (Engine Company No. 30) and a fire truck (Truck Company No. 19). Response times to these sites from Station 19 are within the 5-minute range, and the southern portion of the 77-111 Cambon Drive site is within the 4-minute range.<sup>6</sup>

Station 33 would be the first to respond to the 800 Brotherhood Way site. Station 33 is equipped with a fire engine (Engine Company No. 33). Response times to this site from Station 33 are within the 5-minute range.<sup>7</sup>

Station 39 would be the first to respond to the 445 Wawona Street (Arden Wood) site. This station is equipped with a fire engine (Engine Company No. 39). Response times to this site from Station 39 are within the 5-minute range.<sup>8</sup>

Station 40, located at 2155 18<sup>th</sup> Avenue, would be the first to respond to emergencies in the northeastern corner of the Corridor Study area. Currently, there are no specific development project sites that are within the first responder boundary of Station 40.

### **19<sup>th</sup> AVENUE CORRIDOR STUDY CONCLUSIONS**

The reasonably foreseeable development projects would be in an area already served by the SFFD. Buildout of the development projects would not increase fire and emergency medical

---

<sup>4</sup> Office of the Controller, City and County of San Francisco, A Review of the San Francisco Fire-EMS System, April 2004, Appendix B. Available online at [http://www.sfgov.org/site/controller\\_page.asp?id=24430](http://www.sfgov.org/site/controller_page.asp?id=24430).

<sup>5</sup> *Ibid*, Appendix D, p. 17.

<sup>6</sup> *Ibid*, Appendix D, p. 17.

<sup>7</sup> *Ibid*, Appendix D, p. 17.

<sup>8</sup> *Ibid*, Appendix D, p. 17.



II. Utilities and Public Services  
D. Fire Protection and Emergency Medical Services

response times by placing new development in an area that is inaccessible or distant from existing fire stations.

Successful implementation of the reasonably foreseeable development projects in the Corridor Study area would result in an increase of about 16,850 residents (over the next 20 years (to 2030). Buildout of the projects would result in about 7,375 net new residential units, 460,000 gsf of net new retail space, 834,000 gsf of net new institutional/educational space, 80,000 gsf of net new office space, 214,000 gsf of net new community facilities space, and an eight-screen movie theater.

Demand for fire protection and emergency medical service is expected to occur as the residences and commercial and other non-residential space in the reasonably foreseeable development projects are built and occupied over the 20-year analysis period. This development may result in a demand for additional SFFD staff, and the SFFD has identified the potential need for new or expanded facilities to serve this anticipated cumulative growth in population in southwest San Francisco. While no planning for new or expanded facilities is under way, the SFFD may consider initiating planning in the future if the anticipated development projects are built and occupied.



## E. RECREATION AND PARK FACILITIES

### EXISTING RECREATION AND PARK CONDITIONS

#### Citywide and Regional Resources

The San Francisco Recreation and Park Department (RPD) maintains more than 230 properties (parks, playgrounds, and open spaces) throughout the City. These properties are clustered geographically into nine individual neighborhood service areas (NSA) throughout the City.<sup>1</sup> Among its responsibilities are the management of 15 large, full-complex recreation centers; 9 swimming pools; 6 golf courses; and hundreds of tennis courts, ball diamonds, athletic fields, and basketball courts. Most of these properties have one or more buildings and/or recreation facilities as well as paving, signage, irrigation, electrical, water and sewer systems. The RPD also manages many of the City's signature facilities, such as the Palace of Fine Arts, Golden Gate Park, Coit Tower, the Marina Yacht Harbor, and Candlestick Park with its football stadium. The Corridor Study area is located near two of the City's unique facilities, the San Francisco Zoo and Lake Merced Park, including the Harding Park and Jack Fleming Golf Courses (the Lake Merced Complex). The San Francisco Zoo is managed by the nonprofit San Francisco Zoological Society in partnership with the City and County of San Francisco and attracts approximately 925,000 visitors a year.<sup>2</sup> The San Francisco Public Utilities Commission owns Lake Merced and the RPD maintains the recreational uses around it under the terms of a memorandum of understanding between the two agencies. Recreation activities at the lake include boating, fishing, golfing, jogging, bicycling, skeet shooting, and picnicking.

#### Parkland-Per-Resident Ratios

RPD-owned and operated property in San Francisco that is permanently dedicated to publicly-accessible recreational and open space uses totaled approximately 3,370 acres in 2009.<sup>3</sup> Together with the approximately 3,007 acres owned and operated by other City agencies and state and federal open space properties within the City, about 6,377 acres of parkland and open space (a variety of parks, walkways, landscaped areas, recreational facilities, playing fields, and unmaintained open areas) serve San Francisco.<sup>4</sup> According to the California Department of

<sup>1</sup> San Francisco Recreation and Park Website, [http://www.parks.sfgov.org/wcm\\_recpark/NSA/NSAClusterMap.pdf](http://www.parks.sfgov.org/wcm_recpark/NSA/NSAClusterMap.pdf), accessed December 8, 2009.

<sup>2</sup> San Francisco Zoo. Website, <http://www.sfzoo.org/openrosters/ViewOrgPageLink.asp?LinkKey=14092&orgkey=1903>, accessed November 20, 2009.

<sup>3</sup> San Francisco Department of Public Health, *Healthy Development Measurement Tool*. Website: <http://www.thehdmt.org/indicators/view/8>. Accessed November 17, 2009.

<sup>4</sup> *Ibid.*



Finance, the population of San Francisco as of January 1, 2009, was 845,559,<sup>5</sup> yielding a ratio of approximately 7.5 acres of parkland and open space per 1,000 San Francisco residents.

The City has not established a Citywide target ratio of parkland to residents,<sup>6</sup> and the Recreation and Open Space Element of the *San Francisco General Plan* recognizes that San Francisco is likely to provide less open space acreage than many communities, given land constraints, high population density, and existing urban development. However, under Policy 2.1 of the Open Space Element, the City identified a need to increase the per-capita supply of public open space within the City from the *General Plan*-identified ratio of 5.5 acres per 1,000 San Francisco residents to a level closer to the National Recreation and Park Association (NRPA) suggested ratio of 10 acres per 1,000 residents. As part of this effort, City residents voted in favor of the 2008 Clean and Safe Neighborhood Parks Bond, which is expected to augment the number of City parks (primarily in the eastern part of the City) and fund renovations and repairs to parks, playgrounds, and athletic fields throughout the City.<sup>7</sup>

#### Types of Parks and Recreational Facilities

Within San Francisco, publicly accessible open spaces and recreational facilities are categorized according to their size and particular amenities as serving the City, district, neighborhood, or subneighborhood.<sup>8</sup> District-serving parks are generally larger than 10 acres and have a service area consisting of a three-eighths-mile radius around the park, while neighborhood-serving parks are generally 1 to 10 acres and have a service area of one-quarter mile. Subneighborhood-serving open spaces, often referred to as mini parks, are less than an acre and are too small to accommodate athletic facilities. The service area for subneighborhood parks is one-eighth mile. These parks tend to include seating areas, small landscaped spaces, tot lots targeting pre-school age children, and playgrounds with amenities generally for elementary-school-age children.

Several large park and open space areas, including Golden Gate Park, the Lake Merced Complex, Glen Canyon Park, and John McLaren Park, amount to about one-half of the total RPD-owned acreage in recreational and open space use. In addition, smaller areas with unique attributes, such as water features or hilltop vista points, attract residents from the entire City and function as City-serving open spaces even though they are smaller in size. Unlike neighborhood facilities, City-

---

<sup>5</sup> State of California, Department of Finance, *E-1 Population Estimates for Cities, Counties and the State with Annual Percent Change – January 1, 2008 and 2009*. Sacramento, California, May 2009.

<sup>6</sup> Although the National Park and Recreation Association formerly called for 10 acres of open space per 1,000 city residents, the association no longer recommends a single absolute “average” of park acreage per population, in recognition of the fact that it is more relevant that each area plan and program facilities based upon community need. More important than raw acreage is accessibility (location, walking distance) and whether the facility provides needed services to the population in question.

<sup>7</sup> San Francisco Recreation and Park Department, *2008 Clean and Safe Neighborhood Parks Bond - Planning Report*, October 2007, pp. 11-12.

<sup>8</sup> San Francisco Planning Department, *General Plan Recreation and Open Space Element*, see Policy 2.1 and Figure 2: Public Open Space Service Areas.

serving parks and open spaces provide programs, activities, or recreation opportunities that serve the City as a whole.

San Franciscans also benefit from the Bay Area regional open space system. The National Park Service operates the Golden Gate National Recreation Area (GGNRA) in Marin, San Francisco, and San Mateo Counties. The GGNRA includes attractions such as Muir Woods National Monument, the Marin Headlands, the Presidio, Fort Point National Historic Site, Alcatraz Island, the San Francisco Maritime National Historical Park, Ocean Beach, and Fort Funston. Other federal lands include the Point Reyes National Seashore in Marin County. State park and recreation areas that benefit San Francisco residents include attractions such as Mount Tamalpais State Park, Angel Island State Park, and the Candlestick Point State Recreation Area. Regional resources include the East Bay Regional Park District-owned public open spaces in Alameda and Contra Costa Counties,<sup>9</sup> the Midpeninsula Regional Open Space District-owned public open spaces in San Mateo and Santa Clara Counties,<sup>10</sup> and county park and recreation areas throughout the larger Bay Area. In addition, thousands of acres of watershed and agricultural lands are preserved as open spaces by water and utility districts, e.g., a portion of the San Francisco Peninsula watershed lands in San Mateo County and a portion of the Alameda Creek watershed lands in eastern Alameda County.

#### **Recreational Facilities Identified in the Neighborhood Service Area (NSA 7)**

The San Francisco Recreation and Park Department organizes park and recreation services in San Francisco into nine geographic Neighborhood Service Areas (NSA) in order to improve responsiveness and provide a single point of contact for neighborhood issues and concerns. The Corridor Study area is located in NSA 7. The general boundary of NSA 7 is Lincoln Way on the north, the Pacific Ocean on the west, the San Francisco county line to I-280 on the south, and Twin Peaks to the east.

#### **City-Owned Recreational Facilities in NSA 7 within or in the Vicinity of the Corridor Study Area**

NSA 7 contains about 928 acres of City-owned recreation and open space, including a number of Citywide public recreational facilities in the vicinity of the Corridor Study area. These include the 614-acre Lake Merced Park and the Harding Park and Fleming Golf Courses, which are owned by the SFPUC; the 131-acre San Francisco Zoo; the 30.8-acre Pine Lake Park; the 34.8-acre Sigmund Stern Recreation Grove; the 4.1-acre South Sunset Playground; the 8.9-acre Parkside Square; the 7-acre Larsen Park; the 8.0-acre McCoppin Square; the 3.8-acre Sunset Playground; the 4.9-acre Hawk Hill Park; the 7.0-acre Golden Gate Heights Park; the 1.3-acre JP

---

<sup>9</sup> The East Bay Regional Park District is the largest regional park district in the nation and includes 65 parks and more than 1,100 miles of trails on more than 98,000 acres.

<sup>10</sup> The Midpeninsula Regional Open Space District has 26 open space preserves (24 of which are open to the public) and has permanently preserved over 57,000 acres of open space.

Murphy Playground; the 1.6-acre Rocky Outcrop; the 0.6-acre Grand View Open Space; the 4.0-acre Grandview Park; the 0.5-acre 15<sup>th</sup> Avenue Steps; the 2.3-acre Edgehill Mountain; the 40.7-acre Mount Davidson Park; the 5.0-acre Aptos Playground; the 1.2-acre Merced Heights Playground; the 3.8-acre Brooks Park; the 0.5-acre Lakeview/Ashton Mini-Park; the 11.1-acre Minnie and Lovie Ward Recreation Center; the 0.6-acre Brotherhood/Chester Mini-Park; and the 0.13-acre Randolph/Bright Mini-Park.

There are three City-owned recreational facilities identified in NSA 7 that are located within the boundaries of the Corridor Study area: the 3.1-acre Rolph Nicol Playground, the 2.0-acre West Portal Playground, and the 1.75-acre Junipero Serra Playground.

#### Other Recreational and Open Space Facilities in NSA 7 within the Corridor Study Area

There are numerous other public and private recreational facilities in NSA 7 that are within the Corridor Study area. The private, 18-hole San Francisco Golf Club is the southernmost land use within the Corridor Study area.

North of San Francisco Golf Club, just north of Brotherhood Way, is the Benjamin Bufano open space area ("Peace Park"). Peace Park is under the jurisdiction of the San Francisco Department of Public Works.

North of Peace Park is the Parkmerced site. There are about 75 acres of existing private open space throughout the 152-acre Parkmerced site in a network of lawns, including the Meadow lawn area located west of Juan Bautista Circle, courtyard areas, private open space, and three playgrounds. Also included in this network of open space are the neighborhood's landscaped streets, roundabouts, and boulevards. The playground facilities are located in the northwest corner of the Parkmerced site near the intersection of Vidal Drive and Arballo Drive, in the southwest corner of the Meadow near the intersection of Gonzalez Drive and Arballo Drive (in the west-central portion of the site), and at the southeastern corner of the Parkmerced site near the intersection of Chumasero Drive and Font Boulevard.

Immediately north of Parkmerced is the San Francisco State University (SFSU) campus. Recreational facilities on the SFSU campus include an existing indoor 160,000-gross-square-foot gymnasium building with a basketball/volleyball court and a swimming pool; Cox Stadium, an outdoor stadium used for soccer; and Maloney Field, which is used for baseball and has an adjacent practice field that is used for multiple purposes; and tennis courts. All of these facilities are located in the central portion of the campus west of or adjacent to the valley between University Park North and the academic core. Another softball field is also located at the corner of Lake Merced Boulevard and Font Boulevard. As part of its Campus Master Plan, SFSU



intends to improve connections to district open space and the existing Parkmerced open space network.<sup>11</sup>

#### Other Recreational Facilities in NSA 7 in the Vicinity of the Corridor Study Area

There are other private and public open spaces located within NSA 7 but outside of the Corridor Study area. The private Olympic County Club is located west of the Corridor Study area and straddles the border between San Francisco County and San Mateo County. Fort Funston (part of the Golden Gate National Recreation Area) is west of Lake Merced Park, adjacent to the Pacific Ocean.

### **PARK AND RECREATION NEEDS**

#### **San Francisco General Plan Recreation and Open Space Element**

The Recreation and Open Space Element of the *San Francisco General Plan* notes that “While the number of neighborhood parks and facilities is impressive, they are not well distributed throughout the City...The [unequal distribution] merits correction where neighborhoods lacking parks and recreation facilities also have relatively high needs for such facilities.” The Recreation and Open Space Element defines “high need areas” as areas with high population density or high percentages of children, seniors, or low-income households relative to the City as a whole. The Recreation and Open Space Element defines “deficient” areas as areas that are not served by public open space, areas with population that exceeds the capacity of the open spaces that serve it, or areas with facilities that do not correspond well to neighborhood needs.

High need areas and deficient areas are identified in the Recreation and Open Space Element, based on information from the 1980 U.S. Census.<sup>12</sup> A deficient area is identified for a small portion of the eastern part of the Parkmerced neighborhood. This indicates that the area is not sufficiently served by public open space; however, this area of the Parkmerced neighborhood has a privately-owned playground near the intersection of Font Boulevard and Chumasero Drive, and other privately-owned publicly accessible open space on the east side of the Parkmerced neighborhood. No other areas within the Corridor Study area were identified as having any park deficits. The Recreation and Open Space Element also indicates that the Corridor Study area is not within a high need area for any of the demographic categories studied.<sup>13</sup>

The Planning Department is currently revising the Recreation and Open Space Element. The revision, which is still in draft form, is in the early stages of environmental review and is not yet

---

<sup>11</sup> San Francisco State University, *San Francisco State University Campus Master Plan*, p. 60.

<sup>12</sup> San Francisco Planning Department, *San Francisco General Plan*, Recreation and Open Space Element, Figure 3 through Figure 8 and Map 9.

<sup>13</sup> San Francisco Planning Department, *San Francisco General Plan*, Recreation and Open Space Element, Figure 5 through Figure 8.

official City policy. Similar to the current Recreation and Open Space Element, the proposed revision indicates that the Corridor Study area is not located within a high need area.<sup>14</sup>

### Recreation and Park Department Assessment

In 1998, the City initiated the “Great Parks for a Great City Assessment Project” to determine the condition of the park system as well as future needs. In August 2004, the RPD published a *Recreation Assessment Report* that evaluated the recreation needs of San Francisco residents.<sup>15</sup> Nine service area maps were developed for the *Recreation Assessment Report*. The service area maps were intended to assist RPD staff and key leadership in assessing where services are offered, how equitable the service delivery is across the city, and how effective the service is based on participation levels and area demographics. The maps define service areas not by distance from the facility but by the capacity of the facility as designed and, in some cases, as actually used. Maps are provided for ball fields, pools, outdoor basketball courts, multi-use/soccer fields, recreation centers, and tennis courts.

The service area maps show defined RPD service areas within the Corridor Study area. Identified service areas are recreation centers (Merced Heights Park, Louise Lombard, Junipero Serra Clubhouse, Trocadero, Wawona Clubhouse, Pine Lake Clubhouse, and West Portal Clubhouse); basketball courts (Merced Heights Basketball Courts, Junipero Serra Basketball Courts, and Carl Larson Park Basketball Courts); tennis courts (Merced Heights Tennis Courts, Junipero Serra Tennis Courts, Aptos Tennis Courts, Sigmund Stern Recreation Grove, Parkside Square Tennis Courts, Carl Larson Park Tennis Courts, McCoppin Square Tennis Courts, and West Portal Tennis Courts); ballfields (Junipero Serra Ball Fields, Aptos Ball Fields, Parkside Square Ball Fields, and Carl Larson Park Ball Field); swimming pools (Sava Pool); and multi-use fields and soccer pitches (West Portal Multi-Use Playfield).<sup>16</sup>

### 19<sup>th</sup> AVENUE CORRIDOR STUDY CONCLUSIONS

For purposes of this discussion, parks are generally defined as areas of land set aside for various recreational opportunities for the public. Recreational facilities are those structures and/or improvements that are built at parks (e.g., benches, picnic tables, tennis courts, dog runs, gardens, etc.). Open space is generally defined as an undeveloped park area that may have a planted area not actively maintained by the RPD and that is neither an actively used park land nor a designated

---

<sup>14</sup> San Francisco Planning Department, Draft Recreation and Open Space Element, May 2009, Figure 2: High Needs Areas, p. 19. Website: [http://openspace.sfplanning.org/docs/Recreation\\_and\\_Open\\_Space\\_Element.pdf](http://openspace.sfplanning.org/docs/Recreation_and_Open_Space_Element.pdf). Accessed November 17, 2009.

<sup>15</sup> San Francisco Recreation and Park Department, *Recreation Assessment Report*, August 2004.

<sup>16</sup> *Ibid.*

natural area, such as right-of-way patches or unimproved lots.<sup>17</sup> Therefore, the terms “park” and “recreational facility” are typically used interchangeably, whereas “open space area” refers to an area where the land is either kept in its natural state or enhanced in order to return the land to its natural state.

### **New Corridor Study Area Recreational Facilities and Open Space**

The Corridor Study area is located in an area that has a unique concentration of regional-attracting private and public open spaces and recreational facilities that together provide a wide range of nature-based active and passive recreational opportunities. Future development programs associated with the Corridor Study’s reasonably foreseeable development sites are anticipated to contribute to the area’s open space areas through incorporation of private or privately-owned, publicly accessible recreational facilities and open space. For the purposes of discussion in this Corridor Study, it is assumed that no new RPD facilities will be constructed on any of the individual development sites within the Corridor Study area, and that any new recreation or open space area will be privately owned and maintained.

The Parkmerced Project envisions the creation of a system of neighborhood parks, playgrounds, and open spaces with public plazas, courtyards, greenways, and athletic fields as well as walking and biking paths. Approximately 7 neighborhood parks and 24 playgrounds would be distributed evenly through the Parkmerced site. An organic farm and community gardens would also be included in the proposed 68 acres of active, passive, and informal gathering areas, all contributing to the overall neighborhood character of that site.<sup>18</sup>

As part of the SFSU Campus Master Plan, a contiguous network of pedestrian paths, bridges, recreation fields, and natural areas would be integrated into the other campus green spaces on the SFSU campus. SFSU also intends to improve connections to district open space, including Lake Merced and the existing Parkmerced open space network.

The development projects at 800 Brotherhood Way, 77-111 Cambon Drive, and 1150 Ocean Avenue propose passive recreational open space for the residential units through a combination of common outdoor areas, courtyards, and terraces. The design and development programs for the 700 Font Boulevard, Stonestown, and 445 Wawona (Arden Wood) are not yet conceptualized, but private recreation and open space would also likely be provided through a series of landscaped setbacks, plazas, balconies, and/or conservation areas.

---

<sup>17</sup> San Francisco Recreation and Park Department, *San Francisco Park Maintenance Standards: The Manual and Evaluation Form*, May 2005, p. 17.

<sup>18</sup> The 68 acres of open space would be owned and maintained by the project sponsor.



### Corridor Study Area Recreation Assessment

Successful implementation of the reasonably foreseeable development projects in the Corridor Study area would result in an increase of about 16,850 residents over the next 20 years (to 2030). The existing City-serving recreation and open space facilities within NSA 7 would provide a ratio of approximately 55 acres of public parkland per 1,000 residents of the development project sites area. This ratio is substantially higher than the current citywide ratio of 7.5 acres of public parkland per 1,000 residents as well as the ratio of 5.5 acres of public parkland per 1,000 residents identified in the City's *General Plan*.

The various foreseeable development projects would provide additional parks, recreational facilities, and open space to accommodate the expected increase in demand resulting from the anticipated growth in the Corridor Study area. Together with the existing nearby GGNRA open space and City-owned network of parks and recreational facilities, as well as the anticipated augmentation of the City's network as a result of the passage of the 2008 Clean and Safe Neighborhood Parks Bond<sup>19</sup>, there would be additions to the City's park and open space acreage able to accommodate the additional demand created by Corridor Study area's development projects. Because of this, the development projects would not be expected to increase the use of recreational resources such that substantial physical deterioration or degradation of existing facilities would occur, nor would they result in the need for new or expanded facilities beyond those proposed.

---

<sup>19</sup> San Francisco Recreation and Park Department, *2008 Clean and Safe Neighborhood Parks Bond - Planning Report*, October 2007, pp. 11-12.

## F. PUBLIC SCHOOLS

### EXISTING PUBLIC SCHOOLS CONDITIONS

The San Francisco Unified School District (SFUSD) provides public primary and secondary education in the City and County of San Francisco. As identified in the *SFUSD Capital Plan FY 2010-2019*,<sup>1</sup> the SFUSD has 107 K-12 school sites with 64 elementary schools (grades K-5), 11 alternatively-configured schools<sup>2</sup> (schools not configured grades K-5, 6-8, or 9-12), 14 middle schools<sup>3</sup> (grades 6-8), and 18 high schools<sup>4</sup> (grades 9-12). There are also 34 preschools, 3 charter schools,<sup>5</sup> and 2 San Francisco County Office of Education schools that have separate enrollment processes.

#### Enrollment

Total SFUSD enrollment for the 2008-2009 academic year was 56,116 students.<sup>6</sup> Religious and secular private schools have long been popular in the City. According to Census 2000 data, approximately 26 percent of school-aged children in the City attended private school compared to a California average of about 10 percent. At that time, this translated to approximately 21,000 private school students. The most recent data show that at the state level, private school enrollment declined from approximately 10 percent of school-aged children in 2000 to a little more than 8 percent in 2007.<sup>7</sup> In 2007, approximately 25,000 school-aged students in San Francisco, or 30 percent, were enrolled in approximately 107 private schools.<sup>8</sup> Thus private schools continue to serve a significant number of San Francisco families with school-aged children.

Over the last decade, overall enrollment in the SFUSD has declined. Although there have been periods of public school enrollment application increases, including the current academic year

<sup>1</sup> San Francisco Unified School District Capital Plan, FY 2010-2019. Available online at: <http://portal.sfusd.edu/data/facilities/FINAL%20APPROVED%20CAPITAL%20PLAN%202010-2019%20Oct%2027%202009.pdf>, accessed December 8, 2009.

<sup>2</sup> Includes the Paul Revere Annex.

<sup>3</sup> Excludes Luther Burbank, which is the current site of June Jordan High School.

<sup>4</sup> Includes two programs co-located at 555 Portola Drive (SOTA and Academy of Arts & Sciences) and two programs co-located at 3750 18th Street (Mission High School and San Francisco International High School).

<sup>5</sup> Includes Creative Arts, Edison, and two programs co-located at Benjamin Franklin/Burl Toler Campus and excludes City Arts & Technology (former Luther Burbank Campus), Leadership Charter High School (co-located with James Denman Middle School), and Metropolitan Arts & Technology (co-located at Philip/Sala Burton High School).

<sup>6</sup> San Francisco Unified School District, *School Site List & Summary, CBEDS Information Day – October 1, 2008*, p.1. This figure includes the 55,272 students enrolled in SFUSD schools plus the 844 students enrolled in the San Francisco County Office of Education school sites.

<sup>7</sup> California Department of Education, *Enrollment and Staff in California Private Schools*, August 2007, p. 10. Available at <http://www.cde.ca.gov/ds/si/ps/index.asp>. Accessed November 20, 2009.

<sup>8</sup> *Ibid*, pp. 3, 14, and 21.

(2009-2010), five-year projection estimates continue to show an overall decline in public school enrollment.<sup>9</sup> In the last decade, overall enrollment declined steadily, with many schools having had significant drops in enrollment and very few schools experiencing increased enrollment. Total SFUSD enrollment decreased from 63,925 in 1998-99 to 56,116 in 2008-2009, a decline of about 12.2 percent. Over the past ten years, SFUSD has lost an average of nearly 780 students annually. In response to enrollment declines, several schools, including Golden Gate Elementary School,<sup>10</sup> William De Avila Elementary School,<sup>11</sup> and Franklin Middle School, were closed or consolidated by the School Board in 2006. However, the new and growing communities in Mission Bay, Hunters Point, and Treasure Island may trigger the need to construct new school infrastructure.

According to the *SFUSD Capital Plan FY 2010-2019*, the decline that has been experienced over the last ten years slowed in the 2008-2009 school year. The *SFUSD Capital Plan FY 2010-2019* projections indicate that:

“elementary enrollment will continue to grow due to the large birth cohorts<sup>12</sup> of the early 2000s. The number of elementary school students will eventually rise from 25,000 students in 2008 to 27,600 in 2013, representing an 11 percent increase in just five years. After a slight decline in 2009 and 2010, middle school enrollment will increase again, due to the large birth cohorts of the early 2000s. However, in 2013 it will still stand below current enrollment (at 11,640 compared with 11,816 in 2008). High school enrollment will experience a continuous decline over the next five years, from 19,696 students in 2008 to 18,396 in 2013, reflecting the declining birth trend of the 1990s.”

Additionally, many schools in the SFUSD needed to be modernized, retrofitted, or improved in some way to serve the existing and future SFUSD students. As a result, City voters approved a \$295 million bond in November 2003 to address modernization at 30 school sites, and a \$450 million bond in November 2006 that included 64 projects at 59 additional school sites. Completion of this bond-funded work is expected in 2012. Future bond issues will be necessary to continue the modernization and rehabilitation efforts such as the construction of Americans with Disabilities Act-compliant access.

The SFUSD determines school capacity by applying target enrollment numbers, established each year, that reflect both the academic model of the school and the historical demand patterns. These capacity estimates are used by the Educational Placement Center for enrollment purposes. The SFUSD Facilities Department also provides capacity estimates that reflect the physical space. As part of a redesign of the enrollment process (expected to go into effect for the 2011-2012

---

<sup>9</sup> San Francisco Unified School District Capital Plan, FY 2010-2019, p. 19.

<sup>10</sup> The Golden Gate Elementary School site is now occupied by Creative Arts Charter School.

<sup>11</sup> William De Avila Elementary School has been reopened for the 2009-2010 academic year as a Mandarin Chinese immersion program serving Kindergarten and first-grade students.

<sup>12</sup> A birth cohort is a group of people who were born in a specified calendar period.



academic year), data showing capacity surplus/deficits indicate that the Lakeshore neighborhood, the Parkside neighborhood, the West of Twin Peaks neighborhood and the Oceanview-Merced-Ingleside neighborhood have a surplus of approximately 300 elementary school seats and 647 middle school seats.<sup>13</sup>

### **Student Assignment System**

Since the 2002-2003 academic year, the SFUSD has operated a three-part, race-neutral, choice-based student assignment system that focuses on outreach and recruitment, program placement, and a diversity index lottery. Under this system, the most significant determinants of a student's school assignment are parental choice and school capacity. Under current practice, parents submit an application with a list of ranked school choices, and the SFUSD assigns students based on available openings, attendance areas, and the diversity index lottery. This system has been adjusted in subsequent years to address issues such as parental choice by expanding the list of potential schools from five to seven. Parents of students can now list up to seven schools to improve the chances of their children being assigned to a requested school.<sup>14</sup> Since the SFUSD allows students to apply to any school in the City, in-demand schools receive more enrollment requests than seats available. Whenever enrollment requests are greater than the number of seats available, the SFUSD uses the diversity index lottery to determine which students receive an assignment offer. The diversity index lottery results are based on a formula made up of race-neutral factors that calculates the probability that, in a given grade, randomly chosen students will be different from each other. The five race-neutral factors used are extreme poverty, socioeconomic status, student's home language, quality of student's prior school, and student's prior academic achievement. When elementary school students are assigned to a school outside of their neighborhood, the SFUSD provides them with bus transportation to the assigned school. Middle and high school students assigned to schools outside their neighborhoods rely on public or private transportation to travel to their assigned schools.

### **Existing Conditions in and in the Vicinity of the Corridor Study Area**

There are seven public high schools (Lowell Alternative, School of the Arts, Abraham Lincoln, Newcomer,<sup>15</sup> City Arts and Technology Charter, Leadership Charter, and Balboa), four middle schools (Aptos, A.P. Giannini, Herbert Hoover, and James Denman), and 26 elementary schools (Francis Scott Key, Sunset, Ulloa, Lawton Alternative, Robert Louis Stevenson, Dianne Feinstein, Lakeshore Alternative, Jefferson, Alice Fong Yu, West Portal, Commodore Sloat, Jose Ortega, Sheridan, Clarendon Alternative, Grattan, Rooftop Alternative, Sanchez, Alvarado,

---

<sup>13</sup> San Francisco Unified School District, SFUSD Enrollment Process Redesign, Website: <http://portal.sfusd.edu/data/epc/Comparison%20of%20Number%20of%20Students%20Living%20in%20Each%20SF%20City%20Planning%20Nhood.pdf>. Accessed November 21, 2009.

<sup>14</sup> Applies to all SFUSD schools except Lowell Alternative High School and the School of the Arts.

<sup>15</sup> Newcomer is a one-year transitional educational program for newly arrived immigrant/refugee high school aged students.

Harvey Milk Civil Rights Academy, Miraloma, Sunnyside, Glen Park, S.F. Community Alternative, Monroe, Longfellow, and Guadalupe) located in the southwest quadrant of the City that could serve students generated from identified development sites within the Corridor Study area. The Corridor Study area is located within the attendance districts for Abraham Lincoln High School, Aptos and Herbert Hoover Middle Schools, and Commodore Sloat and Jose Ortega Elementary Schools. Jose Ortega Elementary School has a current enrollment of approximately 254 students and an average classroom size of 19.5 students. Commodore Sloat Elementary School has a current enrollment of approximately 355 students and an average classroom size of 22.2 students. Aptos Middle School has a current enrollment of approximately 988 students and an average classroom size of 29.4 students. Herbert Hoover Middle School has a current enrollment of approximately 1,205 students and an average classroom size of 29 students. Abraham Lincoln High School has a current enrollment of approximately 2,500 students and an average classroom size of 21.6 students.<sup>16</sup>

Within the Corridor Study area, which includes the Parkside, West of Twin Peaks, Lakeshore, and Oceanview-Merced-Ingleside neighborhoods, there were approximately 2,830 SFUSD elementary school students and 1,610 SFUSD middle school students in the 2008-2009 academic year.<sup>17</sup> The elementary schools in these neighborhoods have capacity for a total of approximately 3,550 students with a surplus of about 300 seats.<sup>18</sup> Approximately 28 percent of elementary school-aged children from these neighborhoods in SFUSD schools attended a neighborhood school, a percentage that is substantially lower than the Citywide average of 37 percent. Approximately 78 percent of elementary school-aged children in the Lakeshore neighborhood in SFUSD schools attended a district school in the southwestern quadrant of the City, which includes the Outer Sunset and Inner Sunset neighborhoods in addition to the identified neighborhood. About 71 percent of West of Twin Peaks elementary school-aged children, about 88 percent of Parkside elementary school-aged children, and about 61 percent of Oceanview-

---

<sup>16</sup> The California Department of Education collects, analyzes, and publishes a wide variety of fiscal, demographic, attendance, and student performance data from local educational agencies. This information is the source of the Education Data Partnership profiles and reports that provide data on school enrollment and average classroom size. Website: <http://www.ed-data.k12.ca.us/Navigation/fsTwoPanel.asp?bottom=%2Fprofile.asp%3Flevel%3D07%26reportNumber%3D16>. Accessed November 20, 2009

<sup>17</sup> San Francisco Unified School District, *Table 1: Elementary Matrix: Comparison of K-5 Students Residences with Locations of Schools Attended*, Fall 2008 and *Table 2 Middle School Matrix: Comparison of 6<sup>th</sup> to 8<sup>th</sup> Grade Students Residences with Locations of Schools Attended*, Fall 2008. Website: <http://portal.sfusd.edu/data/epc/Enrollment%20patterns%20for%20each%20SF%20City%20Planning%20Neighborhood.pdf>. Tabular data accessed at SFUSD website on November 19, 2009.

<sup>18</sup> San Francisco Unified School District, *Comparison of Number of Students Living in Each SF City Planning Neighborhood with Elementary and Middle School Capacity*. Tabular data accessed at <http://portal.sfusd.edu/data/epc/Comparison%20of%20Number%20of%20Students%20Living%20in%20Each%20SF%20City%20Planning%20Nhood.pdf> on November 19, 2009.



Merced-Ingleside elementary school-aged children in SFUSD schools attended a district school in the southwestern quadrant of the City.<sup>19,20</sup>

As noted earlier, U.S. Census 2000 data show that about 26 percent of school-aged children in the City were enrolled in private schools. The data show that, of the approximately 12,130 school-aged children in the Lakeshore, Parkside, West of Twin Peaks and Oceanview-Merced-Ingleside neighborhoods, about 4,160 (or about 34 percent) were enrolled in private schools.<sup>21</sup>

### 19<sup>TH</sup> AVENUE CORRIDOR STUDY CONCLUSIONS

Successful implementation of the reasonably foreseeable development projects in the Corridor Study area would result in an increase of about 7,375 net new housing units in the Corridor Study area over the next 20 years (to 2030), increasing the number of school-aged residents within the Corridor Study area. Based on the SFUSD student generation factor of 0.203 student per housing unit, the new residential units would contribute approximately 1,500 students to the SFUSD. For purposes of this analysis, although up to 500 might attend private schools, it is assumed that all 1,500 of these students would attend an SFUSD school. This number of students was distributed evenly by grade, resulting in approximately 690 new elementary students, 350 new middle school students, and 460 new high school students.

The geographic context for the analysis of the development projects' effects on schools is the entire City, because while school assignments take into account parents' preferences, which often include where a student lives, assignment is not necessarily to the closest neighborhood school. Enrollment requests for some schools within the southwestern area of San Francisco, such as Jose Ortega Elementary School and Lowell Alternative High School, generally exceed capacity for these schools. As a result, students within the Corridor Study area are less able to obtain school assignments near their residences than students in other areas of the City. Although exceeding capacity is not typical throughout the SFUSD, it is typical, and likely will continue to be, for highly desirable public schools, such as those in the southwestern area of the City, as well as those throughout San Francisco.

In addition to reasonably foreseeable development in the Corridor Study area over the next 20 years, other development proposals throughout the City, if approved, could result in additional

---

<sup>19</sup> San Francisco Unified School District, *SFUSD Enrollment Patterns for Each SF City Planning Neighborhood*, Fall 2008, p. 6. Tabular data accessed at <http://portal.sfusd.edu/data/epc/Enrollment%20patterns%20for%20each%20SF%20City%20Planning%20Neighborhood.pdf> on November 19, 2009.

<sup>20</sup> San Francisco Unified School District, *Table 1: Elementary Matrix: Comparison of K-5 Students Residences with Locations of Schools Attended*, Fall 2008. Tabular data accessed at <http://portal.sfusd.edu/data/epc/Enrollment%20patterns%20for%20each%20SF%20City%20Planning%20Neighborhood.pdf> on November 19, 2009.

<sup>21</sup> San Francisco Unified School District, District data on private school enrollment. Website: <http://portal.sfusd.edu/data/epc/Attending%20Private%20School.pdf>. Accessed November 20, 2009.



increases in the school-aged population. However, the SFUSD has experienced declining enrollment in the past decade and before. As noted earlier, enrollment declined by more than 12 percent between 1998 and 2008, and the SFUSD closed several schools in 2006. Increases in elementary school enrollment are predicted, but middle school and high school enrollments are not expected to reach 1998 levels over the next five years. About 25 to 30 percent of the school-aged children in the City attend private schools, and it is reasonable to assume that this level of private school enrollment would continue in the future. For these reasons, at the Citywide level the development projects are not expected to contribute to any exceedance of capacity in public schools. As noted above, however, demand for schools in the vicinity of the Corridor Study area will likely continue to exceed capacity.

### III. TRANSPORTATION AND CIRCULATION

---

#### EXECUTIVE SUMMARY

In accordance with the direction of the San Francisco Board of Supervisors, an assessment was conducted to evaluate future transportation conditions in the southwest corner of San Francisco. Multiple development projects within this area have recently been proposed or discussed, and this study, known as the 19<sup>th</sup> Avenue Corridor Study, is to serve as a comprehensive review of the combined effects of these or similar projects in the 19<sup>th</sup> Avenue Corridor area.

The transportation assessment evaluated existing and future traffic, transit, pedestrian, bicycle, and parking conditions in a transportation study area generally bounded by the San Francisco/San Mateo County line, Lake Merced Boulevard, Sunset Boulevard, Sloat Boulevard, 19<sup>th</sup> Avenue, Taraval Street, Claremont Boulevard, Portola Drive, and Junipero Serra Boulevard. Within this area, the Board of Supervisors resolution requesting the 19<sup>th</sup> Avenue Corridor Study identified the following eight development projects as “reasonably-foreseeable” future development projects (herein referred to as the “development projects”) and specifically requested that they be included in the analysis:

- Parkmerced Project;
- 800 Brotherhood Way;
- 77-111 Cambon Drive;
- 700 Font Boulevard;
- 445 Wawona Street (the Arden Wood site);
- SFSU Campus Master Plan (2007-2020 SFSUCMP);
- Stonestown Galleria; and
- 1150 Ocean Avenue.

To isolate the effects of the background growth, proposed developments, and transportation improvements proposed by the City agencies and the developments, a series of analysis tiers was identified. These are:

- Tier 1: Future 2030 baseline conditions with no major development projects or transportation improvements within the study area.
- Tier 2: Tier 1 conditions plus the travel demand generated by the eight potential development projects in the study area, without their associated transportation improvements.
- Tier 3: Tier 2 conditions, plus implementation of the transportation improvements currently proposed by City, regional, and state agencies.
- Tier 4: Tier 3 conditions, plus implementation of the transportation improvements associated with the proposed development projects, which include roadway, intersection, bicycle, pedestrian, and transit enhancements at locations around the Parkmerced neighborhood. Three different iterations of the Tier 4 scenario were evaluated, to address

the issues associated with the potential rerouting of the M Ocean View light rail line as proposed by the Parkmerced Project. These iterations are referred to as:

- Tier 4A: M Ocean View remains in the 19<sup>th</sup> Avenue median.
- Tier 4B: M Ocean View reroutes off 19<sup>th</sup> Avenue and terminates within the Parkmerced neighborhood, with the southern portion of the line starting at Balboa Park covered by the J Church.
- Tier 4C: M Ocean View reroutes off 19<sup>th</sup> Avenue into Parkmerced, with a short-line segment terminating within the Parkmerced neighborhood and a long-line continuing to Balboa Park.

In addition, a variant of the Tier 4 scenarios was conducted to evaluate possible installation of a High-Occupancy/Toll (HOT) lane along southbound 19<sup>th</sup> Avenue and southbound Junipero Serra Boulevard.

Subsequent to the evaluation of these four future tiers, a Tier 5 study will be conducted that assesses large-scale and long-term projects to address corridor-wide transportation issues. This study will be scoped and conducted at a later date.

The following sections summarize the results and conclusions by mode for each tier.

## INTERSECTION CONDITIONS

Intersection operating conditions, in terms of level of service (LOS), were determined for 27 study intersections during the weekday AM and PM peak hours, plus 7 study intersections during the weekend midday peak hour. (Five additional intersections were also assessed under Tier 4.)

The following table summarizes the number of intersections that would operate with unacceptable LOS (LOS E or F) under each tier.

Time Period	Existing	Tier 1	Tier 2	Tier 3	Tier 4A	Tier 4B	Tier 4C
Weekday AM Peak Hour	7	11	13	13	11	11	11
Weekday PM Peak Hour	11	15	20	20	19	19	19
Weekend Midday Peak Hour	3	5	6	6	6	6	7

Source: AECOM, 2009.

Currently, 7 intersections operate with unacceptable conditions (LOS E or F) during the weekday AM peak hour and 11 intersections operate with unacceptable conditions during the weekday PM peak hour, primarily the result of typical daily congestion on the major arterials in the study area. With the growth in traffic volumes associated with Tier 1 and Tier 2 combined, 6 additional intersections during the weekday AM peak hour and 9 additional intersections during the weekday PM peak hour would operate at LOS E or F, resulting in a total of 13 weekday AM and 20 weekday PM peak hour intersections operating with unacceptable conditions (Tier 2 compared to Existing).



With the upgraded traffic signals (with transit signal priority features) and lowered speed limits planned along 19<sup>th</sup> Avenue, and the various transit and roadway projects included in Tier 3, the study intersections along 19<sup>th</sup> Avenue would operate with similar conditions as under Tier 2. In general, this means that additional roadway improvements would be needed to address the worsened traffic conditions with the background growth and Tier 2 projects.

For Tier 4A, Tier 4B, and Tier 4C, intersection operation conditions would be relatively similar (the same number of intersections would operate with unacceptable conditions) and collectively better than Tier 2 and Tier 3 (except for weekend midday conditions). In general, the proposed modifications to the intersections would be sufficient to mitigate the effects of the light rail realignments proposed in Tier 4B and Tier 4C, and there would not be a substantial degradation in operating conditions with any of the proposed roadway reconfigurations or new access points included in Tier 4.

### TRANSIT CONDITIONS

Transit conditions were assessed for each tier using two approaches: an evaluation of transit ridership and capacity conditions at a series of screenlines around the study area, and a calculation of the additional travel times that buses and light rail vehicles would encounter due to future congestion levels on the streets.

Overall, the increase in transit ridership due to background growth and the foreseeable development projects within the study area would result in an appreciable increase in transit ridership at the four identified screenlines (North, Northeast, East, and South). The Tier 3 route and service changes proposed by the San Francisco Municipal Transportation Agency (SFMTA) would be insufficient to accommodate this demand, causing multiple lines to operate over-capacity at the screenlines. The additional changes to the routing of the M Ocean View light rail line and bus lines as assessed in Tier 4A, Tier 4B, and Tier 4C would not affect these conditions. The following table lists the Muni lines that would operate above capacity under each tier.

In addition, the review of operating speeds indicated that bus delays would noticeably increase under Tier 1 and Tier 2 conditions, due to projected congestion levels along the streets. The transportation improvements included in Tier 3, Tier 4A, Tier 4B, and Tier 4C would help reduce the travel time increases, but buses would still operate more slowly than they do under existing conditions, which could have impacts on Muni schedule adherence and service reliability. In addition, the travel times associated with the M Ocean View light rail line would remain similar to those under current conditions, with the exception of the additional travel time required for the rerouted line across 19<sup>th</sup> Avenue and Junipero Serra Boulevard and into the Parkmerced neighborhood.

Time Period / Direction	Existing	Tier 1	Tier 2	Tier 3	Tier 4A	Tier 4B	Tier 4C
<b>Weekday AM Peak Hour</b>							
Inbound	--	29 (N) 29 (E)	29 (N) 29 (E)	28 (S)	28 (S)	28 (S)	28 (S)
Outbound	--	--	28 (N)	M (NE)	M (NE)	M (NE)	M (NE)
<b>Weekday PM Peak Hour</b>							
Inbound	29 (N)	29 (N) 29 (E)	29 (N) M (NE) 29 (E)	29 (N) M (NE) 28 (S)	29 (N) M (NE) 28 (S)	29 (N) M (NE) 28 (S)	29 (N) M (NE) 28 (S)
Outbound	--	29 (N) 29 (E)	28 (N) 29 (N) 29 (E)	28L (N) 28 (S)	28L (N) 28 (S)	28L (N) 28 (S)	28L (N) 28 (S)

Notes:

Parentheses indicates screenline: N = North, NE = Northeast, E = East, S = South.

Source: AECOM, 2009.

### PEDESTRIAN/BICYCLE CONDITIONS

Pedestrian and bicycle conditions were qualitatively assessed throughout the study area. Adequate pedestrian and bicycle facilities are currently provided, and the low to moderate volumes can usually be accommodated without substantial conflicts. However, at several key locations along 19<sup>th</sup> Avenue, pedestrian conditions are constrained, such as at the 19<sup>th</sup> Avenue / Winston Drive and 19<sup>th</sup> Avenue / Holloway Avenue intersections (which provide access to M Ocean View stations). Increases in pedestrian and bicycle activity, as projected with Tier 1 and Tier 2, would worsen these conditions.

Tier 4A, Tier 4B, and Tier 4C include substantial modifications to pedestrian facilities, which would improve pedestrian conditions. In addition, Tier 4B and Tier 4C include the relocation of the M Ocean View station at 19<sup>th</sup> Avenue / Holloway Avenue into the Parkmerced neighborhood, which would improve pedestrian connections to SFSU and Parkmerced. (Note that Tier 4B also has a new J Church station in the median, requiring transfers between the lines which would be an inconvenience to riders traveling to points north and south.)

The short-term projects described in the San Francisco Bicycle Plan, incorporated into Tier 3, would help improve bicycle conditions at several locations throughout the study area. Beyond the bicycle improvements in Tier 3, improvements included in Tier 4 would be limited to those benefits to cyclists extended by the pedestrian crossing improvements described above. In addition, the proposed transportation improvements in Tier 4 were designed so that they would not conflict with implementation of the short-term and long-term projects included in the Bicycle Plan.

#### **PARKING CONDITIONS**

Parking supply and demand conditions were qualitatively assessed throughout the study area. Overall, most on-street parking is well-used throughout the weekday midday and evening periods, with pockets of high demand near shopping areas and adjacent to SFSU. With the new background growth and development projects in the area (Tier 1 and Tier 2), there would be an increase in parking demand, with the potential for high levels of unmet demand in the vicinity of SFSU and Parkmerced. As a result, some portions of the study area could encounter worsened on-street parking conditions.

Parking conditions under Tier 3, Tier 4A, Tier 4B, and Tier 4C would be similar to those under Tier 2. The proposed improvements included in these tiers would result in the elimination of some on-street parking spaces; as such, parking conditions in the vicinity of the modifications would be somewhat worse than under Tier 2. However, parking conditions throughout the remainder of the study area would not substantially change from those determined for Tier 2.



## A. INTRODUCTION

In accordance with Board of Supervisors' legislation (Resolution Nos. 081004 and 081005), this traffic assessment has been prepared for the greater 19<sup>th</sup> Avenue Corridor in the southwest corner of San Francisco. (A copy of the legislation is provided in **Appendix A**.) The transportation study area, as defined in the legislation, includes the area commencing at Lake Merced Boulevard where it begins at the County line, north along Lake Merced Boulevard to Sloat Boulevard, east along Sloat Boulevard to 19<sup>th</sup> Avenue, north along 19<sup>th</sup> Avenue to Taraval Street, east along Taraval Street to Claremont Boulevard, south of Claremont Boulevard to Portola Drive, southwest along Portola Drive to Junipero Serra Boulevard, and south along Junipero Serra Boulevard to the County line. In addition, an expanded study area was defined, which extended west to the Great Highway (instead of Lake Merced Boulevard) and north along Taraval Street (instead of a combination of Sloat Boulevard and Taraval Street). In general, the differences between the study areas are in the northwest corner of the expanded study area (west of 19<sup>th</sup> Avenue and north of Sloat Boulevard) and are minimally affected by conditions along the 19<sup>th</sup> Avenue Corridor.

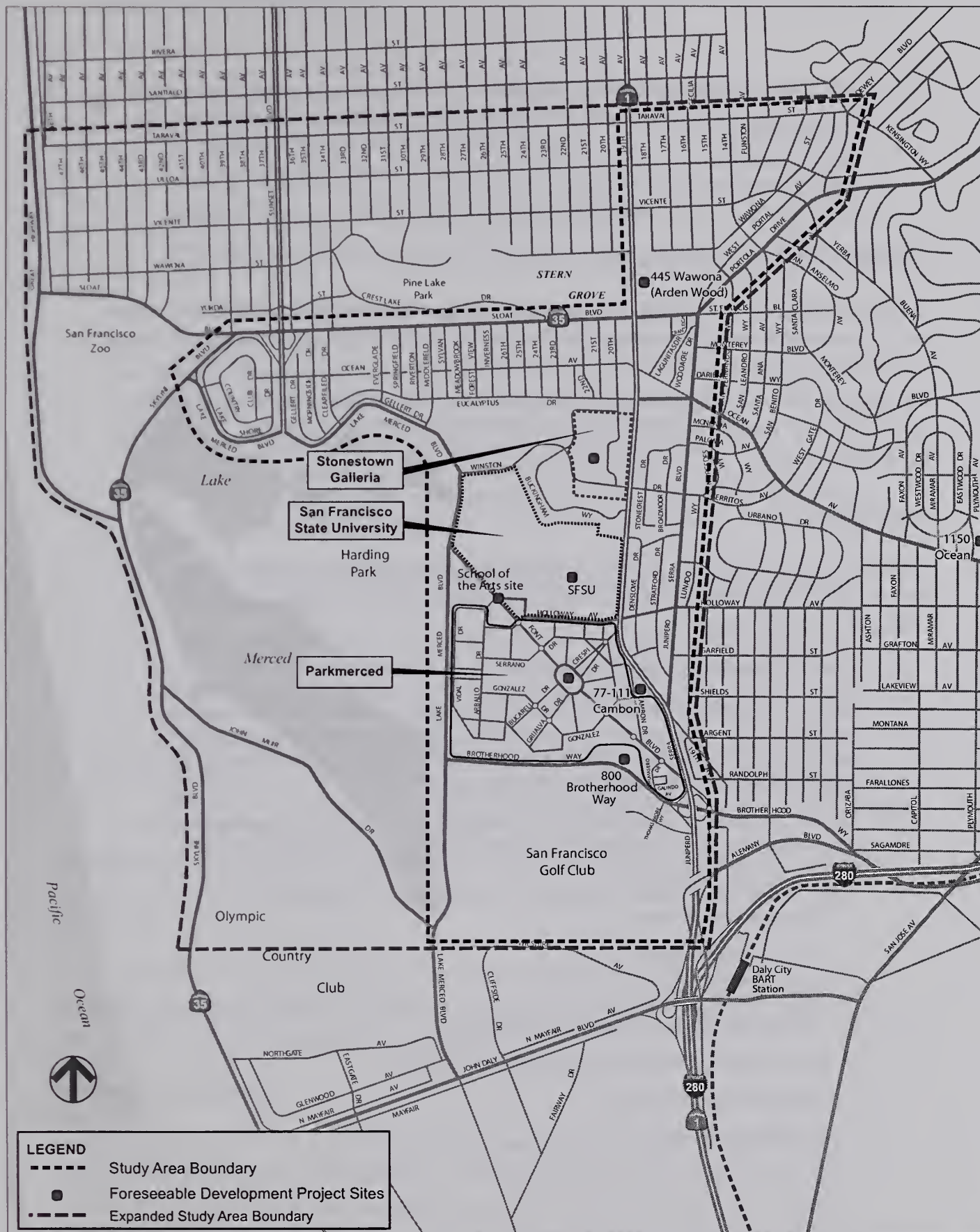
Within the 19<sup>th</sup> Avenue Corridor Study area, the Board of Supervisors resolution requesting the 19<sup>th</sup> Avenue Corridor Study identified the following eight development projects as “reasonably foreseeable” (herein referred to as the “reasonably foreseeable development projects”) and specifically requested that they be included in the study:

- Parkmerced Project;
- 800 Brotherhood Way;
- 77-111 Cambon Drive;
- 700 Font Boulevard;
- 445 Wawona Street (the Arden Wood site);
- SFSU Campus Master Plan (2007-2020 SFSUCMP);
- Stonestown Galleria; and
- 1150 Ocean Avenue.

The study area, including the location of each of the reasonably foreseeable development projects, is illustrated in **Figure III.1**.

## PURPOSE OF THIS STUDY

The purpose of this study is to identify deficiencies in the study area transportation system caused by activity in the area associated with regional development (i.e., development outside of San Francisco) and by potential development or redevelopment of a number of sites in the study area. Additionally, this study evaluates the adequacy of proposals by the City and the reasonably foreseeable development projects for a number of transportation-related improvements in the study area to reduce those deficiencies.



SOURCE: AECOM, Turnstone Consulting

The following transportation topics are addressed:

- Traffic conditions;
- Transit operations;
- Parking conditions; and
- Pedestrian and bicycle circulation.

## STUDY SCOPE AND APPROACH

For the Corridor Study, a detailed evaluation of existing and future conditions along 19<sup>th</sup> Avenue and the surrounding area was conducted to determine the effect of planned and proposed changes to the transportation network as a result of the foreseeable development projects in the area and the implementation of “City Family” transportation improvements, including those associated with SFMTA’s Transit Effectiveness Project (TEP<sup>1</sup>) and other City, regional, and state agencies (as described below).

### Analysis Scenarios

The following near-term and long-term scenarios were evaluated for each analysis topic. For future conditions, separate tiers were developed to isolate the effect of various levels of transportation improvements.

- **Existing Conditions:** Current (2009) conditions.
- **Tier 1 Cumulative Conditions:** Future 2030 baseline conditions with general background growth in population and employment and programmed transportation network modifications throughout the region, but with no major development projects or transportation improvements within the study area.
- **Tier 2 Cumulative Conditions:** Tier 1 conditions plus the travel demand generated by the development projects without their associated transportation improvements:
  - Parkmerced Project;
  - 800 Brotherhood Way;
  - 77-111 Cambon Drive;
  - 700 Font Boulevard;
  - 445 Wawona Street (the Arden Wood site);
  - SFSU Campus Master Plan (2007-2020 SFSUCMP);
  - Stonestown Galleria; and
  - 1150 Ocean Avenue.

---

<sup>1</sup> The TEP is a collaboration between SFMTA and the City Controller’s Office that represents a comprehensive review of San Francisco’s public transit system designed to make Muni bus and light rail service more reliable, quicker, and more frequent.



- **Tier 3 Cumulative Conditions:** Tier 2 conditions, plus implementation of the transportation improvements currently proposed within various City plans and studies. Primarily, these include the following major projects:
  - Implementation of SFMTA's proposed TEP changes;
  - Implementation of SFMTA's traffic calming proposals;
  - Implementation of the near-term projects proposed in the San Francisco Bicycle Plan; and
  - Implementation of the traffic signal modifications and reduced speed limits along 19<sup>th</sup> Avenue as planned by Caltrans and the San Francisco County Transportation Authority.
- **Tier 4 Cumulative Conditions:** Tier 3 conditions, plus implementation of the transportation improvements associated with the foreseeable development projects. In general, these include roadway, intersection, bicycle, pedestrian, and transit enhancements at locations around the Parkmerced neighborhood. Three different iterations of these conditions were evaluated, to address the issues associated with the potential rerouting of the M Ocean View light rail line as proposed by the Parkmerced Project:
  - **Tier 4A:** Assumes no changes to the existing Muni M Ocean View light rail line along 19<sup>th</sup> Avenue.
  - **Tier 4B:** Includes the rerouting of the M Ocean View from 19<sup>th</sup> Avenue into and terminating within Parkmerced, plus the extension of the J Church light rail line along the former M Ocean View route (from Balboa Park) and terminating at either the existing Stonestown or SFSU stations.
  - **Tier 4C:** Includes the rerouting of the M Ocean View from 19<sup>th</sup> Avenue into Parkmerced and splitting the service into short and long lines, with half the trains terminating within Parkmerced and half traveling through Parkmerced and continuing along the current alignment to Balboa Park.

In addition, a variant to the Tier 4 conditions was evaluated to assess the possible implementation of a HOT lane along southbound 19<sup>th</sup> Avenue between Holloway Avenue and Junipero Serra Boulevard.

Subsequent to the evaluation of these four future tiers, a Tier 5 study will be conducted that assesses large-scale and long-term projects to address corridor-wide transportation issues. This study will be scoped and conducted at a later date.

#### Intersection Evaluations

Intersection LOS conditions were analyzed at key intersections within the study area for the weekday AM and PM peak hours (generally 7:30 AM to 8:30 AM and 4:30 PM to 5:30 PM, respectively) of the morning and evening peak periods (7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM, respectively). In addition, intersection LOS conditions for the weekend midday peak hour (generally 1:30 PM to 2:30 PM) of the weekend midday peak period (1:00 PM to 3:00 PM) were analyzed for a subset of the weekday study intersections. The study analyzes these

intersections within the study area because they represent the major intersections where traffic movements currently, or could in the future, deteriorate during peak travel periods. The following intersections were studied:

1. Claremont Boulevard / Taraval Street / Dewey Boulevard / Kensington Way / Montalvo Avenue;
2. Santa Clara Avenue / Vicente Street / Portola Drive;
3. Junipero Serra Boulevard / Sloat Boulevard / St. Francis Boulevard / Portola Drive (*includes weekend midday analysis*);
4. Junipero Serra Boulevard / Ocean Avenue / Eucalyptus Drive;
5. Junipero Serra Boulevard / Winston Drive;
6. Junipero Serra Boulevard / Holloway Avenue;
7. Junipero Serra Boulevard / 19<sup>th</sup> Avenue (*includes weekend midday analysis*);
8. Junipero Serra Boulevard / John Daly Boulevard / I-280 Northbound (NB) Ramps;
9. Junipero Serra Boulevard / John Daly Boulevard / I-280 Southbound (SB) Ramps;
10. 19<sup>th</sup> Avenue / Taraval Street;
11. 19<sup>th</sup> Avenue / Sloat Boulevard (*includes weekend midday analysis*);
12. 19<sup>th</sup> Avenue / Ocean Avenue;
13. 19<sup>th</sup> Avenue / Eucalyptus Drive;
14. 19<sup>th</sup> Avenue / Winston Drive (*includes weekend midday analysis*);
15. 19<sup>th</sup> Avenue / Buckingham Way (*includes weekend midday analysis*);
16. 19<sup>th</sup> Avenue / Holloway Avenue (*includes weekend midday analysis*);
17. 19<sup>th</sup> Avenue / Crespi Drive;
18. Chumasero Drive / Brotherhood Way / Thomas More Way;
19. Sunset Boulevard / Taraval Street;
20. Sunset Boulevard / Ocean Avenue;
21. Skyline Boulevard / Sloat Boulevard / 39<sup>th</sup> Avenue;
22. Skyline Boulevard / Lake Merced Boulevard;
23. Sunset Boulevard / Lake Merced Boulevard;
24. Lake Merced Boulevard / Winston Drive;
25. Lake Merced Boulevard / Font Boulevard;
26. Lake Merced Boulevard / Higuera Avenue; and
27. Lake Merced Boulevard / Brotherhood Way (*includes weekend midday analysis*).

**Figure III.2** illustrates the locations of the study intersections within and surrounding the study area.

In addition, new intersections that would be created, or intersections that would be substantially modified as part of Tier 3 or Tier 4 conditions, were also assessed. These are:

- 7a. Junipero Serra Boulevard / Chumasero Drive;
- 18a. Thomas More Way / Brotherhood Way;
- 26a. Lake Merced Boulevard / Vidal Drive;
- 26b. Lake Merced Boulevard / Acevedo Avenue; and
- 26c. Lake Merced Boulevard / Gonzalez Drive.



SOURCE: AECOM, Turstone Consulting



### **Transit Evaluation**

For each analysis tier, transit ridership and capacity conditions were assessed for the Muni bus and light rail lines that serve the study area. Since several routes provide service to similar locations or operate along parallel streets, the bus and light rail lines were aggregated into a series of screenlines and corridors. In addition, future transit operations, in particular for buses and light rail lines along 19<sup>th</sup> Avenue, were qualitatively assessed based on the projected congestion levels developed as part of the intersection analyses.

### **Pedestrian and Bicycle Evaluation**

Pedestrian and bicycle conditions throughout the study area were qualitatively assessed during typical weekday midday and evening periods. However, at potential conflict locations (e.g., the 19<sup>th</sup> Avenue / Sloat Boulevard, 19<sup>th</sup> Avenue / Holloway Avenue, and 19<sup>th</sup> Avenue / Winston Drive intersections), field observations were performed and accident data were evaluated.

### **Parking Evaluation**

Discussion and analysis of parking conditions focused on the incremental effect of the proposed development projects and transportation improvements on the surrounding area as a whole. As such, a qualitative evaluation of general on-street parking conditions was conducted during the weekday midday (1:00 PM to 3:00 PM) and evening (7:00 PM to 9:00 PM) peak demand periods for the study area.

## B. EXISTING CONDITIONS

This chapter describes existing transportation conditions in the 19<sup>th</sup> Avenue Corridor Study area. Included in this chapter are descriptions of existing roadway and transit networks and documentation of existing traffic, transit, pedestrian, bicycle, and parking conditions.

### ROADWAY NETWORK AND INTERSECTION OPERATING CONDITIONS

The study area is served by a series of streets and roadways with regional significance, as well as by local-serving and neighborhood facilities.

Park Presidio Boulevard, Crossover Drive, 19<sup>th</sup> Avenue, and Junipero Serra Boulevard combined constitute Highway 1, which is the major north-south thoroughfare in western San Francisco. This corridor provides both local and regional access, including connecting with Highway 101 to the north and Interstate 280 (I-280) to the south. During the weekday peak commute periods and during the peak weekend midday periods, 19<sup>th</sup> Avenue and the southern portion of Junipero Serra Boulevard accommodate substantial traffic volumes (between 86,000 and 123,000 vehicles on an average daily basis<sup>2</sup>), and often incur congested conditions at major intersections.

19<sup>th</sup> Avenue is part of Highway 1 between Golden Gate Park and Junipero Serra Boulevard. In this segment, 19<sup>th</sup> Avenue has six primary travel lanes (three lanes in each direction) with right-turn and left-turn pockets provided at some intersections. South of Junipero Serra Boulevard, 19<sup>th</sup> Avenue continues as a local two-lane roadway. Left turns are not allowed from 19<sup>th</sup> Avenue, with the exception of the following locations in the study area: northbound to Winston Drive and southbound to Sloat Boulevard.

Between Eucalyptus Drive and Junipero Serra Boulevard, the M Ocean View light rail line operates within a dedicated median along 19<sup>th</sup> Avenue. The alignment continues along 19<sup>th</sup> Avenue and Randolph Street to the south of Junipero Serra Boulevard, where it operates in mixed-flow with regular vehicular traffic.

Within San Francisco, Junipero Serra Boulevard extends from Sloat Boulevard to the San Francisco / San Mateo County line. (South of 19<sup>th</sup> Avenue, Junipero Serra Boulevard is part of Highway 1.) Through the study area, Junipero Serra Boulevard has six primary travel lanes (three lanes in each direction), with right-turn and left-turn pockets provided at some intersections, on-street parking, and frontage roads. South of the county line, Junipero Serra Boulevard continues through Daly City, Colma, and South San Francisco, connecting with I-280 near its junction with Interstate 380 (I-380).

Sunset Boulevard extends from Golden Gate Park south to the study area, where it becomes Lake Merced Boulevard. Lake Merced Boulevard runs along the east side of the lake, terminating five

---

<sup>2</sup> Caltrans, 2008 Traffic Volumes on the California State Highway System.

blocks south of John Daly Boulevard. Throughout the study area, Sunset Boulevard has six travel lanes (three lanes in each direction). Lake Merced Boulevard has four travel lanes (two lanes in each direction). This corridor provides connections for local through traffic and acts as a reliever route when conditions along 19<sup>th</sup> Avenue are congested.

These facilities provide connections to the regional highway system at the south end of the study area, in particular I-280. I-280 connects the study area with downtown San Francisco and with the Peninsula and South Bay. The nearest I-280 on- and off-ramps are provided at John Daly Boulevard, Alemany Boulevard, and Ocean Avenue.

Existing intersection operations were evaluated for the weekday AM and PM peak hours, as well as the weekend midday peak hour, using the 2000 *Highway Capacity Manual* (HCM) methodology.<sup>3</sup> Traffic counts for each of the 27 study intersections were collected between April 2008 and February 2009, while SFSU was in normal session, and balanced between time periods. Current traffic signal timing plans were obtained from SFMTA and existing lane geometries were determined from observations in the field. The existing lane geometry and traffic volumes for each of the study intersections are included in **Appendix D**. Included in **Appendix E** are adjustment factors applied in the analysis to account for factors such as the percentage of heavy vehicles (buses and trucks) and the effect of coordinated traffic signals.

The operations of the study intersections were analyzed using the level of service (LOS) methodology.<sup>4</sup> The LOS methodology is a qualitative description of the performance of an intersection based on the average delay per vehicle. Intersection levels of service range from LOS A, which indicates free flow or excellent conditions with short delays, to LOS F, which indicates congested or overloaded conditions with extremely long delays. In San Francisco, LOS A through D are considered excellent to satisfactory service levels, and LOS E and F represent unacceptable service levels.

The HCM methodology includes different techniques for calculating level of service depending upon the intersection controls, as follows:

- For signalized intersections, the methodology determines the capacity of each lane group approaching the intersection. The LOS is then based on average delay (in seconds per vehicle) for the various movements within the intersection. A combined weighted average delay and LOS are presented for the intersection.

---

<sup>3</sup> As part of the HCM methodology, adjustments are typically made to the capacity of each intersection to account for various factors that reduce the ability of the streets to accommodate vehicles (such as the downtown nature of the area, number of pedestrians, vehicle types, lane widths, grades, on-street parking, and queues). These adjustments are performed to ensure that the LOS analysis results reflect the operating conditions that are observed in the field.

<sup>4</sup> Intersection level of service was calculated using Dowling's Traffix 8.0 software package, as is customary in the City and County of San Francisco.



- For unsignalized study intersections, the methodology determines LOS for each stop-controlled movement or approach. The intersection LOS is presented for the worst stop-controlled approach.

The Existing Conditions intersection level of service is summarized in **Table III.1** and **Table III.2**. The City of San Francisco generally considers LOS E and F to be unacceptable operating conditions. As such, where conditions are unacceptable, LOS and delay are shown in boldface type in the table. It should be noted that, at unsignalized intersections, operating conditions are considered unacceptable only if the worst stop-controlled approach operates at LOS E or F and the conditions of the Manual on Uniform Traffic Control Devices (MUTCD) peak hour volume signal warrant are met. In addition, at intersections that operate at LOS F conditions, the overall intersection volume-to-capacity ratio (V/C) is presented. Detailed LOS calculations and figures are provided in **Appendix E**.

As shown in **Table III.1** and **Table III.2**, 16 of the 27 study intersections currently operate at acceptable conditions during all of the analysis periods. The following 11 intersections currently operate at unacceptable conditions under the weekday AM, weekday PM, or weekend midday peak hour:

3. Junipero Serra Boulevard / Sloat Boulevard / St. Francis Boulevard / Portola Drive: This signalized intersection operates at LOS E during the weekday AM peak hour and LOS F during the weekday PM peak hour and weekend midday peak hour. In general, this intersection has poor operating conditions due to the relative complexity of its configuration (with five approaches) and the crossing of the M Ocean View and K Ingleside light rail lines. In combination with the high traffic volumes along the Portola Drive, Junipero Serra Boulevard, and Sloat Boulevard approaches, the intersection operates with over-capacity conditions.
7. Junipero Serra Boulevard / 19<sup>th</sup> Avenue: This signalized intersection operates at LOS E during the weekday AM peak hour and LOS F during the weekday PM peak hour and weekend midday peak hour, primarily due to the high volume of traffic on the northbound Junipero Serra Boulevard left-turn and southbound 19<sup>th</sup> Avenue right-turn movements (e.g., vehicles traveling northbound and southbound on Highway 1). With these conditions, backups often form along these approaches.
8. Junipero Serra Boulevard / John Daly Boulevard / I-280 NB Ramps: This signalized intersection operates at LOS E during the weekday PM peak hour. Volumes on the northbound, southbound, and westbound movements exceed the existing lane capacity.
11. 19<sup>th</sup> Avenue / Sloat Boulevard: This signalized intersection operates at LOS E during the weekday AM peak hour and weekend midday peak hour, and LOS F during the weekday PM peak hour, primarily due to delays at the northbound approach. In general, this is due to the provision of an exclusive southbound left-turn phase, which results in a short northbound green phase and over-capacity conditions.

**Table III.1: Intersection Level of Service – Existing Conditions (Weekday Peak Hours)**

	Intersection	Traffic Control	Peak Hour	Existing Conditions	
				LOS	Delay or V/C <sup>2</sup>
1	Claremont Blvd. / Taraval St. / Dewey Blvd. / Kensington Wy. <sup>1</sup>	Roundabout	AM PM	A B	6.8 14.3
2	Santa Clara Ave./ Vicente St./ Portola Dr.	Signal	AM PM	C C	26.5 29.4
3	Junipero Serra Blvd./ Sloat Blvd./ St. Francis Blvd./ Portola Dr.	Signal	AM PM	E F	65.2 >80 / 1.01
4	Junipero Serra Blvd. / Ocean Ave. / Eucalyptus Dr.	Signal	AM PM	C C	31.7 31.8
5	Junipero Serra Blvd. / Winston Dr.	Signal	AM PM	C C	29.1 28.4
6	Junipero Serra Blvd. / Holloway Ave.	Signal	AM PM	C C	29.8 28.6
7	Junipero Serra Blvd. / 19 <sup>th</sup> Ave.	Signal	AM PM	E F	57.9 >80 / 1.15
8	Junipero Serra Blvd. / John Daly Blvd. / I-280 NB Ramps	Signal	AM PM	D E	39.7 74.0
9	Junipero Serra Blvd. / John Daly Blvd. / I-280 SB Ramps	Signal	AM PM	B C	19.8 33.6
10	19 <sup>th</sup> Ave. / Taraval St.	Signal	AM PM	B B	19.7 16.4
11	19 <sup>th</sup> Ave. / Sloat Blvd.	Signal	AM PM	E F	58.1 >80 / 1.54
12	19 <sup>th</sup> Ave. / Ocean Ave.	Signal	AM PM	C F	23.5 >80 / 1.41
13	19 <sup>th</sup> Ave. / Eucalyptus Dr.	Signal	AM PM	B D	14.3 49.9
14	19 <sup>th</sup> Ave. / Winston Dr.	Signal	AM PM	D F	37.9 >80 / 1.29
15	19 <sup>th</sup> Ave. / Buckingham Wy.	OWSC	AM PM	E F	47.7 >50 / 1.31
16	19 <sup>th</sup> Ave. / Holloway Ave.	Signal	AM PM	D E	40.6 61.2
17	19 <sup>th</sup> Ave. / Crespi Dr.	Signal	AM PM	D B	37.3 19.7
18	Chumasero Dr. / Brotherhood Wy. / Thomas More Wy.	Signal	AM PM	E E	77.5 68.1
19	Sunset Blvd. / Taraval St.	Signal	AM PM	B C	17.7 20.9
20	Sunset Blvd. / Ocean Ave.	Signal	AM PM	B B	11.8 12.0
21	Skyline Blvd. / Sloat Blvd. / 39 <sup>th</sup> Ave.	AWSC	AM PM	B C	14.5 21.4

Table III.1 (continued)

	Intersection	Traffic Control	Peak Hour	Existing Conditions	
				LOS	Delay or V/C <sup>2</sup>
22	Skyline Blvd. / Lake Merced Blvd. (North)	OWSC	AM	B	11.9
			PM	B	13.1
	Skyline Blvd. / Lake Merced Blvd. (South) <sup>3</sup>	OWSC	AM	D	29.3
			PM	E	42.8
23	Sunset Blvd. / Lake Merced Blvd.	OWSC	AM	<b>F</b>	<b>&gt;50 / 0.54</b>
			PM	D	28.2
24	Lake Merced Blvd. / Winston Dr.	Signal	AM	C	21.9
			PM	D	48.2
25	Lake Merced Blvd. / Font Blvd.	Signal	AM	D	39.1
			PM	C	32.8
26	Lake Merced Blvd. / Higuera Ave.	Signal	AM	<b>E</b>	<b>66.9</b>
			PM	<b>E</b>	<b>59.2</b>
27	Lake Merced Blvd. / Brotherhood Wy.	Signal	AM	D	42.7
			PM	C	30.3

*Notes:*

**Bold** indicates intersection operating at unacceptable LOS.

AWSC = All-way stop-controlled

OWSC = One way stop-controlled

LOS = level of service

V/C = volume-to-capacity

<sup>1</sup> Although intersection is designed as a roundabout, all approaches are controlled by stop signs; as such, it was analyzed as an all-way stop-controlled intersection.

<sup>2</sup> Delay presented in seconds per vehicle. For intersections that operate at LOS F, the delay per vehicle and V/C ratio are presented.

<sup>3</sup> Though the intersection would operate at an unacceptable LOS, the conditions of the Manual on Uniform Traffic Control Devices (MUTCD) peak hour volume signal warrant would not be met.

Source: AECOM, 2009.



**Table III.2: Intersection Level of Service – Existing Conditions (Weekend Midday Peak Hour)**

	Intersection	Traffic Control	Existing Conditions	
			LOS	Delay or V/C <sup>1</sup>
3	Junipero Serra Blvd./ Sloat Blvd./ St. Francis Blvd./ Portola Dr.	Signal	<b>F</b>	<b>&gt;80 / 1.00</b>
7	Junipero Serra Blvd. / 19 <sup>th</sup> Ave.	Signal	<b>F</b>	<b>&gt;80 / 1.64</b>
11	19 <sup>th</sup> Ave. / Sloat Blvd.	Signal	<b>E</b>	<b>56.0</b>
14	19 <sup>th</sup> Ave. / Winston Dr.	Signal	<b>D</b>	<b>42.0</b>
15	19 <sup>th</sup> Ave. / Buckingham Wy.	OWSC	<b>D</b>	<b>30.2</b>
16	19 <sup>th</sup> Ave. / Holloway Ave.	Signal	<b>B</b>	<b>14.3</b>
27	Lake Merced Blvd. / Brotherhood Wy.	Signal	<b>C</b>	<b>25.1</b>

*Notes:***Bold** indicates intersection operating at unacceptable LOS.

OWSC = One way stop-controlled

<sup>1</sup> Delay presented in seconds per vehicle. For intersections that operate at LOS F, the delay per vehicle and V/C ratio are presented.*Source:* AECOM, 2009.

12. 19<sup>th</sup> Avenue / Ocean Avenue: This signalized intersection operates at LOS F during the weekday PM peak hour, primarily due to high volumes at the northbound approach that exceed the existing lane capacity. In addition, the westbound Ocean Avenue approach also experiences a significant amount of delay, due to the green time needed for the heavy northbound and southbound traffic flows.
14. 19<sup>th</sup> Avenue / Winston Drive: This signalized intersection operates at LOS F during the weekday PM peak hour, due in part to northbound left-turn volumes exceeding the existing lane capacity. In addition, as a result of the heavy northbound and southbound traffic flows, there is insufficient green time available to the Winston Drive approaches.
15. 19<sup>th</sup> Avenue / Buckingham Way: The worst minor approach to this stop-controlled intersection (eastbound Buckingham Way right-turn movement) operates at LOS E during the weekday AM peak hour and LOS F during the weekday PM peak hour due to the high southbound through volume along 19<sup>th</sup> Avenue, which makes it difficult for right-turning traffic to find gaps. The intersection would meet the conditions of the MUTCD peak hour volume signal warrant.
16. 19<sup>th</sup> Avenue / Holloway Avenue: This signalized intersection operates at LOS E during the weekday PM peak hour, as during this time period the northbound approach operates over capacity.
18. Chumasero Drive / Brotherhood Way / Thomas More Way: This signalized intersection operates at LOS E during both the weekday AM and PM peak hours. During both time periods, the westbound approach is at over-capacity conditions.

23. Sunset Boulevard/Lake Merced Boulevard: This one-way stop-controlled intersection operates at LOS F during the weekday AM peak hour. The eastbound Lake Merced Boulevard left-turn movement experiences considerable delay due to the high northbound and southbound Sunset Boulevard through movements that are not required to stop.
26. Lake Merced Boulevard / Higuera Avenue: This signalized intersection operates at LOS E during both the weekday AM and PM peak hours, primarily due to the high traffic volumes at the northbound approach and the limited available green time due to the provision of a protected southbound left-turn phase. Note that this intersection would meet the MUTCD peak hour signal warrants.

## TRANSIT NETWORK

This section discusses the transit network within the study area. For this analysis, existing transit data were compiled for Muni bus and light rail lines that operate within the study area. Existing ridership data were obtained from SFMTA's TEP, which collected ridership data on Muni lines between October 2006 and May 2008.<sup>5</sup>

The study area is served by several Muni bus and light rail lines that provide localized service, as well as connections between the 19<sup>th</sup> Avenue Corridor and downtown San Francisco. The West Portal Muni Metro Station, located in the northeast section of the study area, as well as the intersection of 19<sup>th</sup> Avenue / Holloway Avenue, are major transfer points for transit service. 19<sup>th</sup> Avenue itself is served by the 28 19<sup>th</sup> Avenue and 28L 19<sup>th</sup> Avenue Limited bus routes for its entire length through the study area. The Muni M Ocean View train also aligns with 19<sup>th</sup> Avenue from the intersection of Junipero Serra Boulevard to the intersection of Eucalyptus Drive. Within the study area, the 29 Sunset bus line runs on Sunset Boulevard, Winston Drive, 19<sup>th</sup> Avenue, and Holloway Avenue. The Muni 17 Parkmerced bus line is located entirely within the study area boundaries and serves primarily the Parkmerced neighborhood and the immediate surrounding areas, as does the 88 Mission / BART Shuttle. In addition, the 18 46<sup>th</sup> Avenue operates in the western portion of the study area, including along 46<sup>th</sup> Avenue, Sloat Boulevard, John Muir Drive, Lake Merced Boulevard, and Winston Drive, terminating at Stonestown Galleria. **Figure III.3** shows the existing transit network within and around the study area. **Table III.3** summarizes the route, frequency, and vehicle information for Muni services in the study area.

### Muni Screenline Groupings

The analysis of existing capacity, ridership, and capacity utilization, as well as maximum load points, on Muni was conducted through a series of screenlines. The concept of screenlines is typically used to describe the magnitude of travel to or from the study area, and to compare

<sup>5</sup> Bus data were obtained from "SFMTA Automatic Passenger Counters, Collected Fall 2006 – Spring 2007," M Ocean View data were obtained from "SFMTA Manual Ride Checks, Collected Fall 2006 – Spring 2007," and J Church data were obtained from "SFMTA Manual Ride Checks, Collected February-May 2008." Note that these data were collected prior to the bus and light rail service changes instituted on December 5, 2009.





**Table III.3: Existing Muni Service in the Study Area**

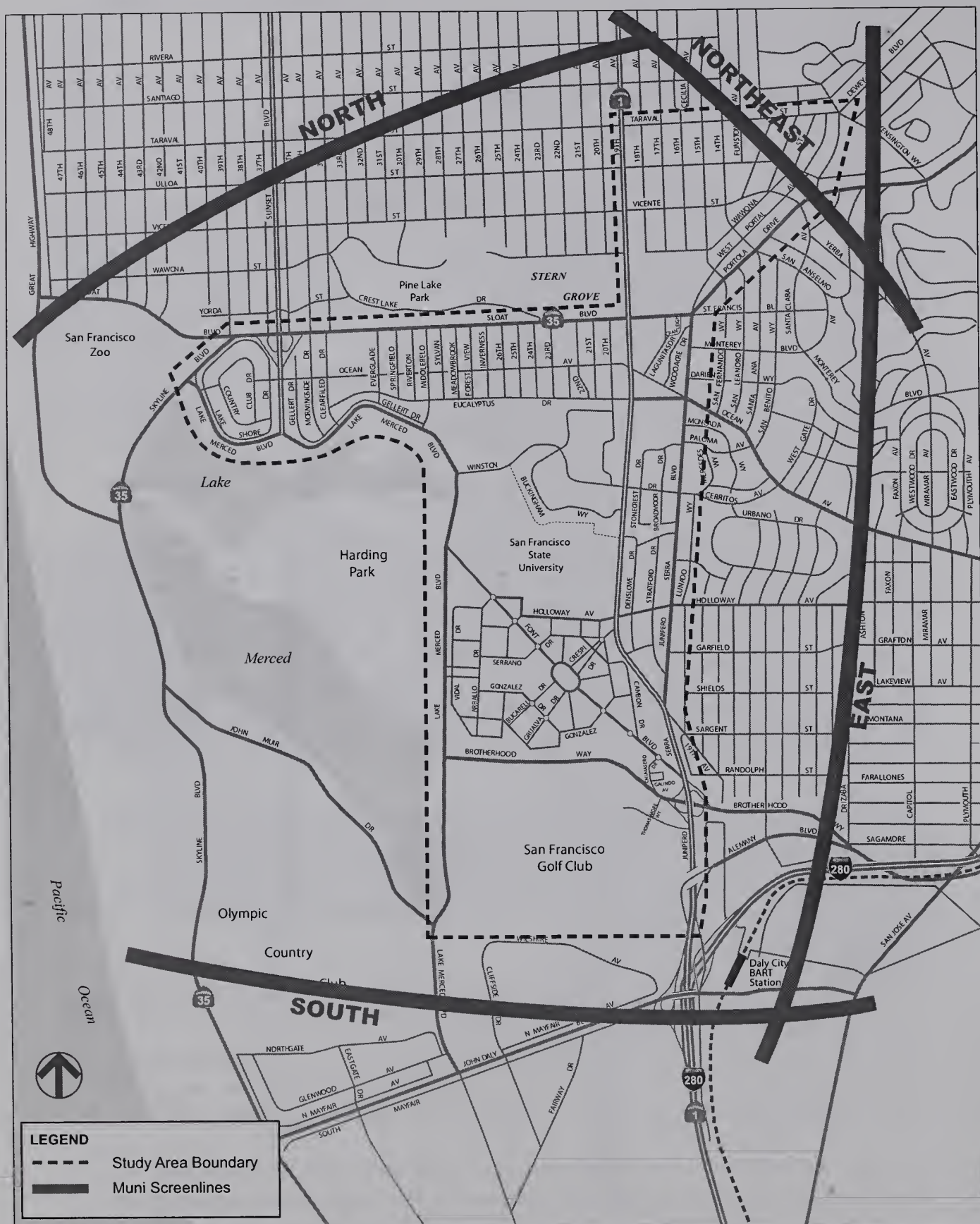
Line	Route	Headways (minutes)			Vehicle
		Weekday		Week-end	
		Peak	Midday		
M Ocean View	Balboa Park to Downtown via Ocean View, SFSU, West Portal, the Twin Peaks Tunnel, and the Market Street Subway	8-10	10	12-15	Metro Streetcar (1- or 2-car)
17 Parkmerced	Loop from West Portal, Stonestown, SFSU, Parkmerced, and back	20	20	30	Diesel Bus 30'
18 46 <sup>th</sup> Avenue	Stonestown to Legion of Honor via Lake Merced, 46 <sup>th</sup> Avenue, and Ocean Beach	15	20	20	Diesel Bus 40' (Standard)
28 19 <sup>th</sup> Avenue	Daly City BART to Fort Mason via SFSU, 19 <sup>th</sup> Avenue, Park Presidio, and the Golden Gate Bridge Toll Plaza	8-12	12	12	Diesel Bus 40' (Standard)
28L 19 <sup>th</sup> Avenue	Daly City BART to Park Presidio / California via SFSU and 19 <sup>th</sup> Avenue	10	--	--	Diesel Bus 40' (Standard)
29 Sunset	Candlestick Park to the Presidio via McLaren Park, Balboa Park BART, SFSU, Sunset, Lincoln, Golden Gate Park, and 25 <sup>th</sup> Avenue	8-10	15	15	Diesel Bus 40' (Standard)
88 Mission / BART Shuttle	Lake Merced to Balboa Park BART via Parkmerced and Mission	8-15	--	--	Diesel Bus 40' (Standard)

Source: Muni, 2009; AECOM, 2009.

estimated transit volumes to available capacities. Screenlines are hypothetical lines that would be crossed by persons traveling between the study area and other parts of San Francisco and the region, and are typically assessed at the Maximum Load Point (MLP) of each line. **Table III.4** summarizes the assumed screenline groupings for this study and **Figure III.4** illustrates the screenlines in relation to the study area.

Note that four transit routes are analyzed in more than one screenline. The routing of these transit lines is such that they enter the study area from one direction and exit to another direction. Thus, the MLP for each of these routes was derived from the section of the route that corresponds to the direction of the screenline. If this did not correspond to the overall MLP for the line, the stop with the highest ridership in the vicinity of the study area was identified and deemed a MLP.

It should be noted that the 17 Parkmerced, given its low frequencies (every 20 minutes even during the peak hour), circuitous route, and “community service” nature, was not included in the screenline analysis. The 17 Parkmerced supplements the M Ocean View transit trips to



SOURCE: AECOM, Turnstone Consulting



**Table III.4: Muni Screenline Groupings Used for the Corridor Study**

Screenline	Line
North	18 46 <sup>th</sup> Avenue 28 19 <sup>th</sup> Avenue 28L 19 <sup>th</sup> Avenue Limited 29 Sunset
Northeast	M Ocean View
East	M Ocean View 29 Sunset
South	28 19 <sup>th</sup> Avenue 28L 19 <sup>th</sup> Avenue Limited

Source: AECOM, 2009.

downtown and West Portal, with overlapping stops at three locations (Holloway Avenue, Eucalyptus Drive, and along West Portal Avenue); as such, the number of riders that would use the 17 Parkmerced would be relatively low. In addition and in consideration of this service supplementation, as part of the Parkmerced Project, a new shuttle service connecting Parkmerced with Daly City BART would assume some of the ridership demand from the 17 Parkmerced, particularly internal transit demand within Parkmerced as well as riders from Parkmerced who need to transfer to other lines. In addition, it should be noted that the K Ingleside was also not included in the screenline analysis because its overlap area with the M Ocean View is limited to only two stops before West Portal, both in areas along Junipero Serra Boulevard largely unaffected by growth in the corridor. Finally, the 88 Mission / BART Shuttle was analyzed separately and is not grouped into any of the screenlines.

The capacities for each type of Muni vehicle type are shown in **Table III.5**. These capacities account for both seated passengers and standees. Peak hour utilization for each screenline is determined using these vehicle capacities. In accordance with Proposition E, the SFMTA Board has adopted an 85 percent policy threshold for transit vehicle loads, which the Board has determined more accurately reflects actual operations and the likelihood of “pass-ups” (i.e., vehicles not stopping to pick up more passengers). As such, all screenline capacity and capacity utilization calculations incorporate the 85 percent “policy threshold” for passenger loading—i.e., the design capacity of transit vehicles is decreased by 15 percent, meaning a capacity utilization over 100 percent would exceed the 85 percent policy threshold.

#### Existing Muni Screenline Analysis

Existing ridership and capacity for each line were obtained from the TEP data collection efforts for the weekday AM and PM peak hours, with the weekday AM peak period defined as 6:00 AM to 9:00 AM and the weekday PM peak period defined as 3:00 PM to 6:00 PM. As the TEP provides data by the hour, the ridership during the peak hour of each period was selected.



**Table III.5: Muni Vehicle Capacity**

Vehicle	Capacity (passengers)	
	Design	Policy Threshold
Diesel Bus 30'	45	38
Diesel Bus 40' (Standard)	63	54
Metro Streetcar (1-car train)	119	101
Metro Streetcar (2-car train)	238	202

Source: City of San Francisco, Transportation Guidelines for Environmental Review, 2002; AECOM, 2009.

The screenlines were evaluated at MLPs generally outside of the envelope containing the foreseeable development projects, selected by examining ridership patterns across the whole length of each line from the TEP data. Given the nature of existing and proposed development in the area as both a trip attractor (e.g., SFSU, Stonestown) and trip generator, the analysis evaluates both directions of transit service (i.e., inbound to the study area and outbound from the study area).

In general, the screenline analysis selects the MLP across the entire line and assumes that all transit ridership assigned to a specific line will pass through the MLP—in other words, there is no assumed loss of ridership between the study area and the MLP. In reality, however, some of the new transit riders generated by the area projects would be expected to get off before the MLP. The screenline analysis conducted for this study, therefore, represents a “worst-case” scenario since it assumes that all riders need to pass through the most-congested location along the line.

The resulting ridership, capacity, and capacity utilization for the Muni lines and screenline groupings in **Table III.4** are summarized in **Table III.6** and **Table III.7**. Detailed Muni screenline calculations are provided in **Appendix G**.

As shown in **Table III.6**, during the weekday AM peak hour, all bus and light rail lines operate at less than capacity at the study analysis locations. In general, the highest capacity utilization is currently found on the 29 Sunset, which operates between 66 and 72 percent of capacity in the outbound direction from the study area, and between 90 and 99 percent of capacity in the inbound direction to the study area. Overall, capacity utilization in the weekday AM peak hour is 40 percent in the inbound direction and 47 percent in the outbound direction.

Table III.6: Muni Screenline Summary – Existing Conditions (Weekday AM Peak Hour)

Screenline		Existing Conditions		
		Ridership	Capacity	Utilization
<b>Outbound</b>				
N	18 46 <sup>th</sup> Avenue	108	216	50%
	28 19 <sup>th</sup> Avenue	292	378	77%
	28L 19 <sup>th</sup> Avenue Limited	110	216	51%
	29 Sunset	214	324	66%
	<i>Subtotal</i>	<i>724</i>	<i>1,134</i>	<i>64%</i>
NE	M Ocean View	1,038	1,414	73%
	<i>Subtotal</i>	<i>1,038</i>	<i>1,414</i>	<i>73%</i>
E	M Ocean View	166	1,414	12%
	29 Sunset	233	324	72%
	<i>Subtotal</i>	<i>399</i>	<i>1,738</i>	<i>23%</i>
S	28 19 <sup>th</sup> Avenue	76	378	20%
	28L 19 <sup>th</sup> Avenue Limited	20	270	7%
	<i>Subtotal</i>	<i>96</i>	<i>648</i>	<i>15%</i>
	88 Mission / BART Shuttle	253	378	68%
	<b>TOTAL All Screenlines</b>	<b>2,510</b>	<b>5,312</b>	<b>47%</b>
<b>Inbound</b>				
N	18 46 <sup>th</sup> Avenue	76	216	35%
	28 19 <sup>th</sup> Avenue	290	486	60%
	28L 19 <sup>th</sup> Avenue	104	270	39%
	29 Sunset	195	216	90%
	<i>Subtotal</i>	<i>665</i>	<i>1,188</i>	<i>56%</i>
NE	M Ocean View	363	1,414	26%
	<i>Subtotal</i>	<i>363</i>	<i>1,414</i>	<i>26%</i>
E	M Ocean View	229	1,414	16%
	29 Sunset	321	324	99%
	<i>Subtotal</i>	<i>550</i>	<i>1,738</i>	<i>32%</i>
S	28 19 <sup>th</sup> Avenue	271	378	72%
	28L 19 <sup>th</sup> Avenue Limited	150	270	56%
	<i>Subtotal</i>	<i>421</i>	<i>648</i>	<i>65%</i>
	<b>TOTAL All Screenlines</b>	<b>1,999</b>	<b>4,988</b>	<b>40%</b>

Source: Muni, 2008; AECOM, 2009.

**Table III.7: Muni Screenline Summary – Existing Conditions (Weekday PM Peak Hour)**

Screenline		Existing Conditions		
		Ridership	Capacity	Utilization
<b>Outbound</b>				
N	18 46 <sup>th</sup> Avenue	97	216	45%
	28 19 <sup>th</sup> Avenue	264	378	70%
	28L 19 <sup>th</sup> Avenue	150	324	46%
	29 Sunset	187	216	87%
	<i>Subtotal</i>	<i>698</i>	<i>1,134</i>	<i>62%</i>
NE	M Ocean View	796	1,212	66%
	<i>Subtotal</i>	<i>796</i>	<i>1,212</i>	<i>66%</i>
E	M Ocean View	509	1,414	36%
	29 Sunset	263	270	97%
	<i>Subtotal</i>	<i>772</i>	<i>1,684</i>	<i>46%</i>
S	28 19 <sup>th</sup> Avenue	184	324	57%
	28L 19 <sup>th</sup> Avenue	89	270	33%
	<i>Subtotal</i>	<i>273</i>	<i>594</i>	<i>46%</i>
<b>TOTAL All Screenlines</b>		<b>2,539</b>	<b>4,624</b>	<b>55%</b>
<b>Inbound</b>				
N	18 46 <sup>th</sup> Avenue	114	216	53%
	28 19 <sup>th</sup> Avenue	290	432	67%
	28L 19 <sup>th</sup> Avenue	105	270	39%
	29 Sunset	272	270	101%
	<i>Subtotal</i>	<i>781</i>	<i>1,188</i>	<i>66%</i>
NE	M Ocean View	1,194	1,414	84%
	<i>Subtotal</i>	<i>1,194</i>	<i>1,414</i>	<i>84%</i>
E	M Ocean View	242	1,212	20%
	29 Sunset	284	378	75%
	<i>Subtotal</i>	<i>526</i>	<i>1,590</i>	<i>33%</i>
S	28 19 <sup>th</sup> Avenue	131	378	35%
	28L 19 <sup>th</sup> Avenue	63	324	19%
	<i>Subtotal</i>	<i>194</i>	<i>702</i>	<i>28%</i>
88 Mission / BART Shuttle		144	324	44%
<b>TOTAL All Screenlines</b>		<b>2,839</b>	<b>5,218</b>	<b>54%</b>

Notes:

Shading indicates unacceptable conditions (at or exceedance of 100% capacity utilization).

Source: Muni, 2008; AECOM, 2009.



As shown in **Table III.7**, during the weekday PM peak hour, overall capacity utilization is higher, with the inbound and outbound directions both operating near 55 percent. During this time period, the 29 Sunset operates over capacity (i.e., at 101 percent of capacity) inbound to the study area. However, all other lines and all screenlines operate below capacity, as they do during the weekday AM peak hour.

### Other Transit Operational Issues

In addition to transit capacity, there are other issues of concern regarding transit service in the study area. Due to the heavy vehicular traffic along Junipero Serra Boulevard and 19<sup>th</sup> Avenue and the limited capacity of intersections along this corridor, substantial queuing and congestion often occurs during peak periods. This queuing results in delays to transit service on 19<sup>th</sup> Avenue—particularly the 28 19<sup>th</sup> Avenue, 28L 19<sup>th</sup> Avenue Limited, and 29 Sunset—and makes it difficult for transit vehicles to merge into traffic after departing stops or to enter turn lanes, in the case of northbound buses on the 29 Sunset. In addition, congested conditions can affect Muni operations (by increasing travel times) and service reliability.

Light rail service (on the M Ocean View) along 19<sup>th</sup> Avenue also is affected by conflicts with vehicles at three locations: the merge from 19<sup>th</sup> Avenue east of Junipero Serra Boulevard into the median of 19<sup>th</sup> Avenue, the northbound left turn from 19<sup>th</sup> Avenue into Winston Drive, and the crossing on 19<sup>th</sup> Avenue at Rossmoor Drive. The conflicts are as follows:

- At 19<sup>th</sup> Avenue and Junipero Serra Boulevard, M Ocean View trains need to cross two pedestrian crosswalks and four lanes of northbound traffic with complex merge patterns at a wide intersection in order to connect the median of 19<sup>th</sup> Avenue with 19<sup>th</sup> Avenue east of Junipero Serra Boulevard.
- There are two left-turn pockets along 19<sup>th</sup> Avenue at Winston Drive, but the left-most pocket is shared between northbound M Ocean View trains and left-turning vehicles, typically resulting in delays to transit service when these left-turning vehicles are waiting in queue. When this left turn receives a green arrow and the train reaches the first position in the queue, however, any additional left-turning vehicles stuck behind the train must wait again until the next left-turn phase. This configuration also results in an awkward situation where left-turning vehicles in the right-most pocket can make their turn while a train and any vehicles trapped behind must wait. When a train waiting in the first position in the queue finally receives the green light with the northbound through vehicles, left-turning vehicles in the right-most pocket may mistakenly believe they have the green light, potentially causing a side-swipe accident.
- Along 19<sup>th</sup> Avenue at Rossmoor Drive, trains must cross northbound 19<sup>th</sup> Avenue to enter and exit a dedicated transit right-of-way. Although “Keep Clear” signs are painted onto the road surface, downstream queuing from the intersection of 19<sup>th</sup> Avenue / Eucalyptus Avenue can block the path of trains at this crossing. In addition, southbound trains must cross almost head-on with northbound traffic, increasing the potential for collisions.

Light rail station capacity and pedestrian access are also issues of concern. In general, platform widths at the median stations at 19<sup>th</sup> Avenue / Holloway Avenue and 19<sup>th</sup> Avenue / Winston Drive

are inadequate to handle current passenger flows during peak hours. The station at 19<sup>th</sup> Avenue / Holloway Avenue is particularly problematic as it is the primary stop for passengers bound to and from the SFSU campus. During the morning period (at the start of the school day), there is a large surge in passengers with each arrival of a southbound train, while during the afternoon period there is a steady buildup of passengers waiting for a northbound train.

As these stations are located in the median of 19<sup>th</sup> Avenue, passengers coming to and from the train must also cross three to four lanes of moving traffic, in addition to one set of light rail tracks. Due to insufficient space between the two sets of light rail tracks, there is limited queuing area for passengers waiting to cross away from the station, who often queue up along the sloped walkway up to the platform or wait within the light rail tracks.

## **BICYCLE AND PEDESTRIAN CONDITIONS**

Throughout the study area, bicycle and pedestrian conditions were qualitatively evaluated. In addition, at potential conflict locations (e.g., the 19<sup>th</sup> Avenue / Sloat Boulevard, 19<sup>th</sup> Avenue / Holloway Avenue, and 19<sup>th</sup> Avenue / Winston Drive intersections), field observations were performed and an evaluation of accident data was conducted.

### **Pedestrian Facilities**

Sidewalks are provided along almost all streets within the study area, and crosswalks and pedestrian signals are provided at major signalized intersections. In addition, high-visibility crosswalks are in place at some intersections, such as adjacent to Stonestown Galleria and SFSU. Pedestrian volumes are at their highest near Stonestown Galleria and SFSU, where M Ocean View light rail stops are provided (at the 19<sup>th</sup> Avenue / Winston Drive and 19<sup>th</sup> Avenue / Holloway Avenue intersections, respectively).

Pedestrian crossings at the Lake Merced Boulevard / Brotherhood Way, Junipero Serra Boulevard / 19<sup>th</sup> Avenue, 19<sup>th</sup> Avenue / Font Boulevard, and Junipero Serra Boulevard / Brotherhood Way intersections are somewhat limited or difficult. Specifically:

- At both the 19<sup>th</sup> Avenue / Winston Drive and 19<sup>th</sup> Avenue / Holloway Avenue intersections, there are typically high volumes of pedestrians walking to and from the M Ocean View stations located in the median of the roadway. During peak activity hours, there is a substantial volume of pedestrians in the adjacent crosswalks, and pedestrians can overflow the crosswalks and corners. In addition, the waiting area for riders leaving the stations is inadequate during peak times, resulting in passengers waiting in the adjacent train right-of-way for the pedestrian signal phase.
- At the Junipero Serra Boulevard / Font Boulevard intersection, no crosswalk is provided to cross Font Boulevard, a distance of about 140 feet. Considering that vehicles turning right into Font Boulevard are uncontrolled, this makes for a difficult pedestrian crossing.
- At the Junipero Serra Boulevard / 19<sup>th</sup> Avenue intersection, crosswalks are provided on three of the four approaches. The wide roadways (seven lanes on 19<sup>th</sup> Avenue and six to



eight lanes on Junipero Serra Boulevard), in conjunction with the angled approaches and the light rail median, result in extremely long pedestrian walk distances. In addition, there are channelized right turns for the northbound and southbound Junipero Serra Boulevard approaches with free right turns, which can lead to conflicts due to higher vehicular travel speeds and poor visibility for pedestrians.

- At the Junipero Serra Boulevard / Brotherhood Way interchange, no formal pedestrian facilities are provided across any of the on- or off-ramps, and no formal sidewalks have been created. Although there are minimal pedestrian volumes at this location, pedestrians are required to cross against uncontrolled and relatively high-speed traffic at multiple locations.
- At the Lake Merced Boulevard / Brotherhood Way intersection, there are channelized right turns for the northbound and westbound approaches. At these locations, pedestrians must cross against uncontrolled free right-turns. Due to the speed of vehicles and the volume of traffic, these crossings can be difficult, especially during peak hours.

Pedestrian access to and from the Parkmerced neighborhood is somewhat limited on both 19<sup>th</sup> Avenue and Lake Merced Boulevard. Along 19<sup>th</sup> Avenue, four pedestrian access points are provided in succession at Holloway Avenue, Crespi Drive, Cardenas Avenue, and 200 feet south of Cardenas Avenue, but the next access point is not provided until Font Boulevard, about 2,000 feet to the south. Along Lake Merced Boulevard, pedestrian access is provided only through Higuera Avenue. As a result, connections to nearby uses and the surrounding neighborhoods are fairly limited.

In general, field observations indicated potential safety hazards that could pose significant risks to pedestrians for two of the three potential conflict locations evaluated below (the 19<sup>th</sup> Avenue / Holloway Avenue and 19<sup>th</sup> Avenue / Winston Drive intersections). At these locations, the traffic signals are pre-timed to allow pedestrians sufficient time to cross and crosswalks are provided on all legs, with the exception of the south leg of the 19<sup>th</sup> Avenue / Winston Drive intersection. However, the high volume of pedestrians destined to the M Ocean View light rail stations in the median of 19<sup>th</sup> Avenue, in conjunction with the limited pedestrian waiting areas at the platforms and on the sidewalks, can result in substantial overcrowded conditions and safety concerns.

#### **Bicycle Facilities**

Throughout the study area, bicycle facilities consisting of bike paths (Class I), bike lanes (Class II), wide curb lane bike routes, and bike routes (Class III) are provided. These routes are interconnected to the Citywide Bicycle Network and provide access between the study area and other locations throughout San Francisco. Bike paths are separated from the roadway with dedicated paths for bicyclists. Bike lanes include a dedicated lane on the street adjacent to the curb lane for bicyclists' use. Wide curb lane bike routes are designated on wider roadways, where bicyclists may be able to ride outside the path of motor vehicle travel. Bike routes are signed routes only, where bicyclists share travel lanes with vehicles. The major bicycle facilities in the study area are illustrated in **Figure III.5** and consist of the following:





SOURCE: AECOM, Turnstone Consulting

19TH AVENUE CORRIDOR STUDY

FIGURE III.5: EXISTING BICYCLE NETWORK

- **Route 50** is a bike route that runs eastbound-westbound along Sloat Boulevard.
- **Route 60** is a wide curb lane bike route that runs eastbound-westbound along Vicente Street.
- **Route 75** runs northbound-southbound from the Daly City BART station as a bike route one roadway east of Junipero Serra Boulevard (i.e., St. Charles Avenue, 19<sup>th</sup> Avenue, Beverly Street, Junipero Serra Boulevard frontage), runs through SFSU and Stonestown Galleria as a bike route, and runs along 20<sup>th</sup> Avenue as a wide curb lane bike route north toward Golden Gate Park.
- **Route 84** is a bike route that runs eastbound-westbound along Ocean Avenue.
- **Route 85** is a wide curb lane bike route that runs northbound-southbound along 34<sup>th</sup> Avenue and Lake Merced Boulevard.
- **Route 86** circles Lake Merced as a bike path, extends east along Winston Drive as a bike lane and a bike route, and continues along Cerritos Avenue as a wide curb lane bike route to Ocean Avenue, where it terminates.
- **Route 90** runs eastbound-westbound along Holloway Avenue as a bike route, bike lane, and a wide curb lane bike route for various segments.
- **Route 91** is a bike route that runs northbound-southbound along Skyline Boulevard and John Muir Drive.
- **Route 95** is a bike route that runs northbound-southbound along Skyline Boulevard.

As with pedestrian conditions, bicycle volumes were relatively low along the established bicycle routes in the study area, specifically near 19<sup>th</sup> Avenue. However, high bicycle volumes were observed near the major destinations, such as Stonestown and SFSU. Bicycle conditions were observed to be generally operating acceptably throughout the study area.

### Conflict Assessment

At the three potential conflict locations as chosen by City of San Francisco Planning staff (the 19<sup>th</sup> Avenue / Sloat Boulevard, 19<sup>th</sup> Avenue / Holloway Avenue, and 19<sup>th</sup> Avenue / Winston Drive intersections), collision data were obtained for a five-year period from 2003/2004 through 2007/2008. The data are summarized in **Table III.8**.

For comparison purposes, pedestrian and bicycle counts taken in May 2009 were collected for the weekday PM peak hour at these intersections. (The pedestrian counts included all pedestrians at each crosswalk.) These counts are summarized in **Table III.9**.

**Table III.8: Collision Summary, 2003/2004 – 2007/2008**

Intersection		Number of Collisions					Collision Rate <sup>1</sup>
		Vehicle/ Vehicle	Vehicle/ Pedestrian	Vehicle/ Bike	Vehicle/ Other	Total	
11	19 <sup>th</sup> Ave. / Sloat Blvd.	35	0	1	3	39	0.244
14	19 <sup>th</sup> Ave. / Winston Dr.	8	4	0	2	14	0.110
16	19 <sup>th</sup> Ave. / Holloway Ave.	9	4	0	2	15	0.126

*Note:*

<sup>1</sup> Collision rate is in collisions per million vehicles entering the intersection.

*Source:* Caltrans SWITRS database, AECOM, 2009.

**Table III.9: Pedestrian and Bicycle Count Summary, May 2009 (Weekday PM Peak Hour)**

Intersection		Pedestrian Count	Bicycle Count
11	19 <sup>th</sup> Ave / Sloat Blvd.	77	6
14	19 <sup>th</sup> Ave. / Winston Dr.	464	11
16	19 <sup>th</sup> Ave. / Holloway Ave.	866	19

*Source:* AECOM, 2009.

As shown in **Table III.8**, over the five-year period, the 19<sup>th</sup> Avenue / Sloat Boulevard intersection had a total of 39 collisions (about eight per year), the 19<sup>th</sup> Avenue / Winston Drive intersection had 14 collisions (about three per year), and the 19<sup>th</sup> Avenue / Holloway Avenue intersection had 15 collisions (about three per year). It should be noted that at the 19<sup>th</sup> Avenue / Sloat Boulevard intersection, one of the vehicle-to-vehicle collisions resulted in a fatality. At the 19<sup>th</sup> Avenue / Winston Drive and 19<sup>th</sup> Avenue / Holloway Avenue intersections, none of the collisions resulted in fatalities.

In particular, the intersections of 19<sup>th</sup> Avenue / Winston Drive and 19<sup>th</sup> Avenue / Holloway Avenue—both with substantial pedestrian volumes—showed four vehicle-pedestrian collisions each (less than one per year). At both of these locations, pedestrians must cross three to four lanes of traffic in each direction, in addition to the exclusive light rail median. This large crossing distance (over 100 feet), combined with the high traffic volumes and flow speeds along 19<sup>th</sup> Avenue, results in a pedestrian environment that has an appreciable potential for conflicts.



## PARKING CONDITIONS

The evaluation of parking conditions throughout the study area focused on the incremental effect of the foreseeable development projects and the proposed transportation improvements on the surrounding area as a whole.

Weekday midday (1:00 to 3:00 PM) and evening (7:00 to 9:00 PM) parking observations were conducted throughout the study area to determine general availability and occupancy. In general, on-street parking within the study area consists of time-limited unmetered parking (generally in the residential areas) or metered parking (generally near commercial areas or in locations with high parking demand). Specifically, along Junipero Serra Boulevard, all-day parking is provided on both sides of the street. Along the west side of 19<sup>th</sup> Avenue, all-day parking is provided, and on the east side of 19<sup>th</sup> Avenue two-hour parking is provided. In areas where students may be likely to park on the street (Holloway Avenue), one-hour and metered parking is provided. Also, where there is neighborhood-serving retail without large off-street parking lots (Ocean Avenue), metered parking is provided. It should be noted that most of the metered parking is limited to one hour in duration.

Observations indicate that on-street parking is generally well-used throughout the day, particularly near SFSU. Off-street parking facilities are provided for major vehicle trip-generating uses such as SFSU, Parkmerced, and Stonestown Galleria. However, patrons of these sites also use the on-street parking available in the study area.

### C. DESCRIPTION OF ANALYSIS TIERS

As discussed previously, a detailed evaluation of future conditions within the 19<sup>th</sup> Avenue corridor was commissioned to determine the effect of planned and proposed changes to the transportation network as a result of the foreseeable development projects in the area and the implementation of “City Family” transportation improvements, including those associated with Muni’s TEP. As such, to properly assess the effects of all potential changes to the transportation network, Cumulative Conditions were addressed in separate tiers. A description of each tier and associated methodology is provided below.

#### FUTURE BASELINE (TIER 1 AND TIER 2)

Tier 1 includes just the background growth in development throughout the region, excluding projects within the study area, expected between now (existing conditions) and future year 2030. The background growth information was provided by the San Francisco County Transportation Authority (SFCTA), based on information in the San Francisco Planning Department’s land use projections.

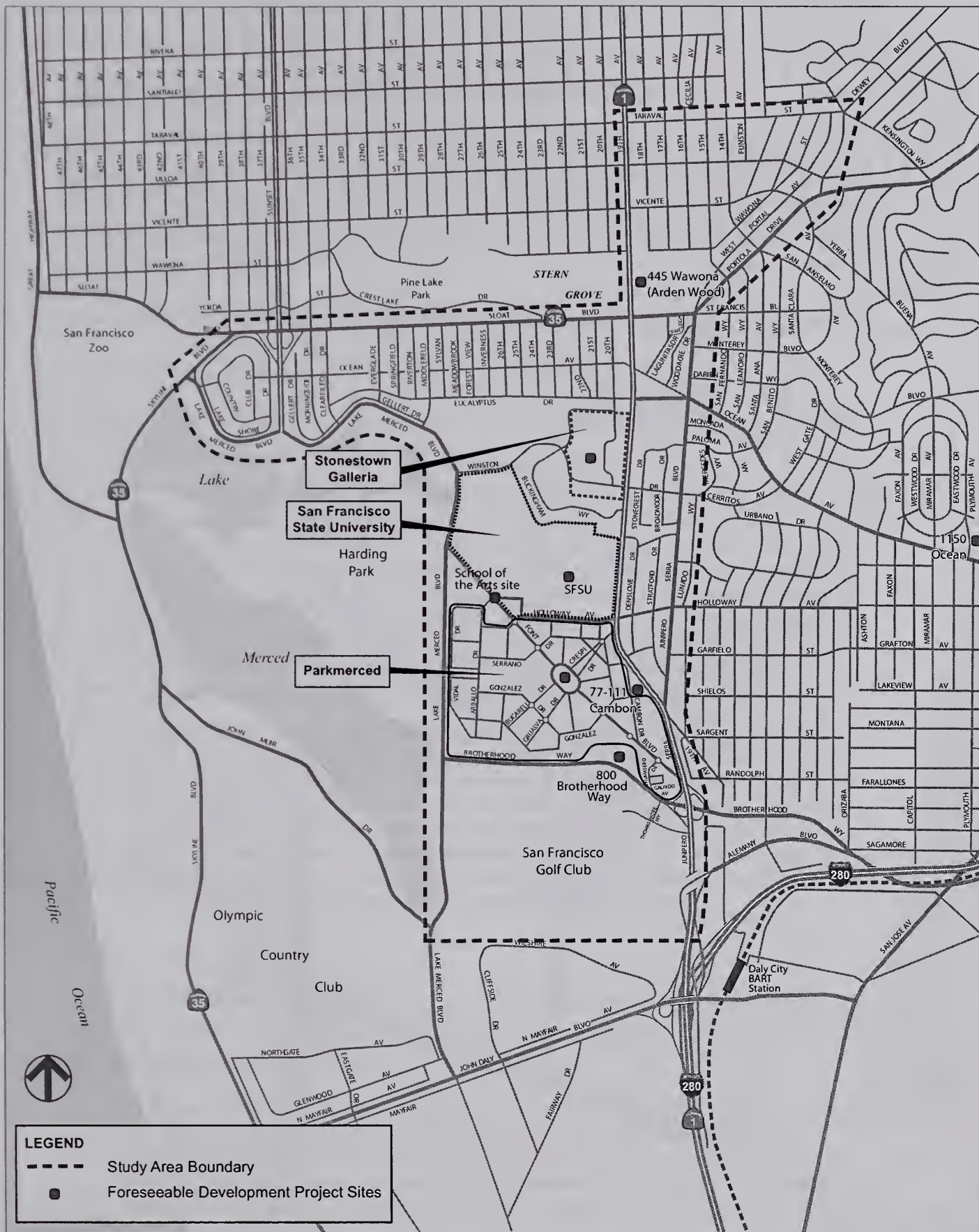
Tier 2 includes the travel demand associated with the following eight foreseeable development projects that have been proposed in the study area:

- Parkmerced Project;
- 800 Brotherhood Way;
- 77-111 Cambon Drive;
- 700 Font Boulevard;
- 445 Wawona Street (the Arden Wood site);
- SFSU Campus Master Plan (2007-2020 SFSUCMP);
- Stonestown Galleria; and
- 1150 Ocean Avenue.

These development sites are illustrated in **Figure III.6**.

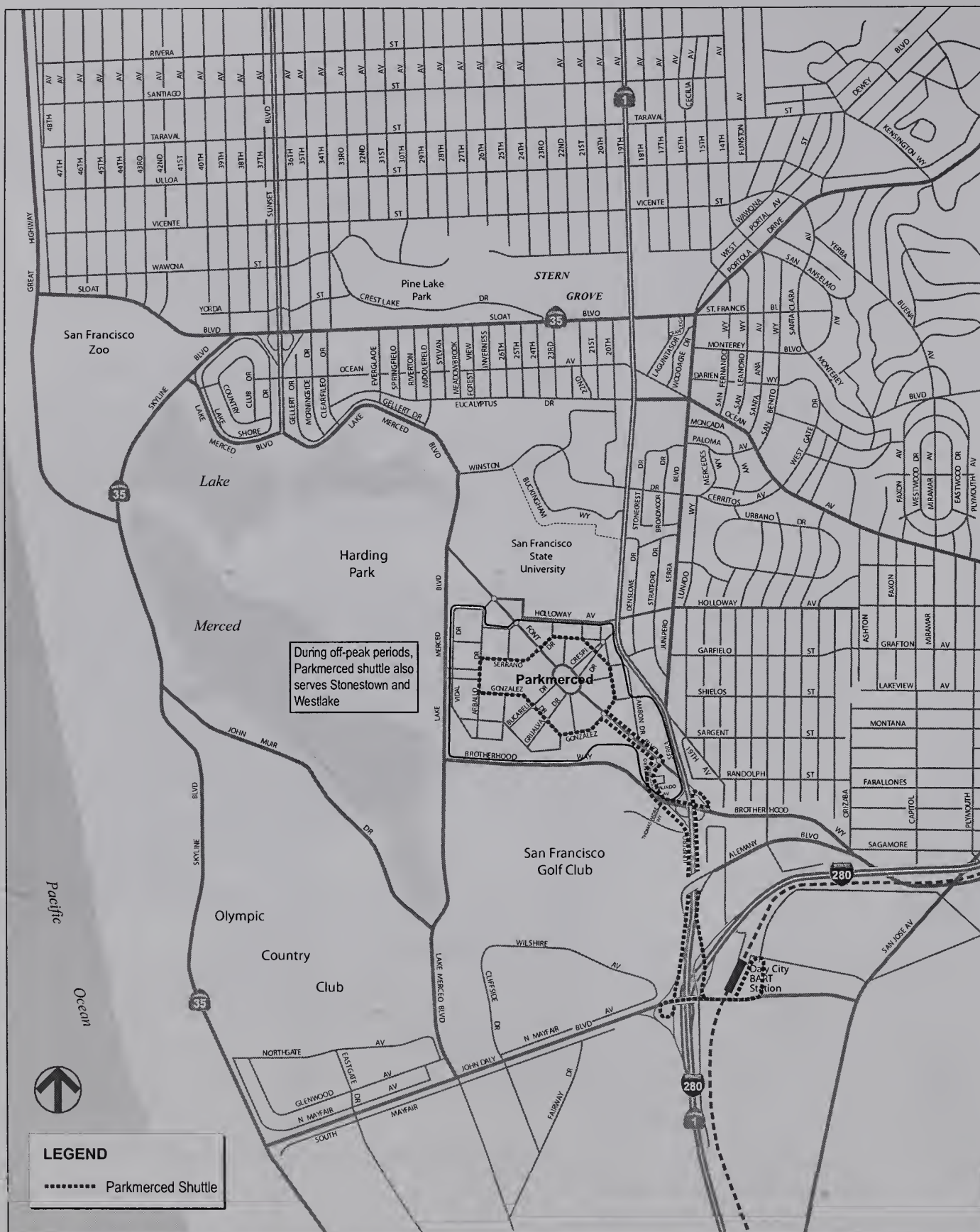
In addition, Tier 2 includes the shuttle proposed by the Parkmerced Project sponsor, which would be available to Parkmerced residents only. This shuttle, as shown in **Figure III.7**, would operate between the Parkmerced neighborhood and the Daly City BART station with 5- to 10-minute headways during peak periods and 10-minute headways during off-peak periods. In addition, the shuttle would be expanded to provide service to the nearby Stonestown and Westlake shopping districts during off-peak periods.

Combined, Tier 1 and Tier 2 make up the Future Baseline scenario, to which all other tiers are compared.



SOURCE: AECOM, Turnstone Consulting





SOURCE: AECOM, Turnstone Consulting

### **FUTURE BASELINE PLUS PUBLIC IMPROVEMENTS (TIER 3)**

Tier 3 consists of Tier 2 conditions, plus implementation of the transportation improvements currently proposed by City, regional and state agencies. The following transportation improvements were assessed as part of Tier 3. In general, these are changes to the roadway and transit network that are proposed by and would be implemented by the various public agencies (such as SFMTA, SFCTA, or Caltrans).

These major roadway and transit modifications are illustrated in **Figure III.8** and **Figure III.9**.

#### **Street Network**

As part of ongoing studies and programs, the following modifications to the existing roadway network are planned within the study area:

- SFCTA, in conjunction with Caltrans, is in the process of modifying the traffic signals at key locations along 19<sup>th</sup> Avenue and Park Presidio Boulevard. Within the study area, intersections along 19<sup>th</sup> Avenue at Taraval Street, Ulloa Street, Vicente Street, Sloat Boulevard, Ocean Avenue, Eucalyptus Drive, Winston Drive, Holloway Avenue, and Junipero Serra Boulevard will be changed to provide transit signal priority treatments. As proposed, this modification would allow an approaching Muni vehicle the ability to hold a green phase for a short duration as it approaches an intersection, which would reduce the potential for delays of Muni vehicles along the corridor. In addition, a reduced speed limit (from 35 to 30 miles per hour) will be applied.
- As part of its Better Streets program, in 2008, SFMTA evaluated the implementation of traffic calming along Holloway Avenue and Garfield Avenue between Junipero Serra Boulevard and Ashton Street. Treatments under consideration for these streets include installation of chicanes (shifting of the travel lanes through staggered curb extensions), pedestrian islands, bulb-outs, gateway treatments, and speed humps/cushions. The purpose of these measures is to address vehicular speed and pedestrian safety issues; as such, it is not anticipated that significant reduction in traffic volumes would occur. In addition, no changes to the intersection geometries are anticipated.

#### **Transit Network**

As part of their proposed TEP, SFMTA is proposing modifications to the routing and scheduling of bus and light rail lines throughout the City.<sup>6</sup> The following proposals would affect the current lines that operate within the study area:

- M Ocean View / J Church: The segment of the M Ocean View south of SFSU would be transferred to the J Church (one-car trains), while the segment north of SFSU to downtown would continue to operate with two-car trains. To accommodate the new J Church line, a new station may need to be constructed south of Holloway Avenue. (The end-of-the-line location for the J Church has not been finalized.) Frequencies during the

---

<sup>6</sup> Some of these changes were implemented on December 5, 2009 as part of SFMTA's service adjustments.





SOURCE: AECOM, Turnstone Consulting

19TH AVENUE CORRIDOR STUDY

FIGURE III.8: TIER 3 ROADWAY NETWORK CHANGES





Daily City BART Station

weekday AM and PM peak hours would drop from a train every 8 to 9 minutes to a train every 10 minutes on the M Ocean View. Frequency on the extended J Church would increase from a train every 8 to 9 minutes to a train every 6 to 7 minutes during the weekday AM peak hour and from a train every 7 to 8 minutes to a train every 6 minutes during the weekday PM peak hour.

- **17 Parkmerced:** The 17 Parkmerced would absorb discontinued portions of the 18 46<sup>th</sup> Avenue along Skyline Boulevard, John Muir Drive, and Lake Merced Boulevard, and be extended to serve Lakeshore Plaza, Daly City BART, and Westlake Shopping Center. (Service inside Daly City limits would be limited-stop only.) The one-way loop inside Parkmerced via Arballo Drive, Garces Drive, and Gonzalez Drive would be consolidated to two-way service on Font Boulevard.
- **18 46<sup>th</sup> Avenue:** The segment along Lake Merced Boulevard, John Muir Drive, and Skyline Boulevard would be transferred to the 17 Parkmerced. (The section on Lake Merced Boulevard between Font Boulevard and John Muir Drive would have no replacement service.) The 18 46<sup>th</sup> Avenue would instead use Sunset Boulevard and Sloat Boulevard to get to and from the San Francisco Zoo and Stonestown. At the northern end of the line, the 18 46<sup>th</sup> Avenue would inherit the discontinued Ocean Beach branch of the 38 Geary, and the existing route via Point Lobos Avenue and Geary Boulevard would be discontinued.
- **28 19<sup>th</sup> Avenue:** The segment east of the Golden Gate Bridge Toll Plaza, serving the Marina District and Fort Mason, would be transferred to the 28L 19<sup>th</sup> Avenue Limited and the 43 Masonic. Frequency during the weekday AM peak hour would be increased from a bus every 8 to 9 minutes to a bus every 7 to 8 minutes. During late night and owl periods when the 28L 19<sup>th</sup> Avenue Limited is not in service, the 28 19<sup>th</sup> Avenue would be extended to cover these segments. With the combined 28 19<sup>th</sup> Avenue and 28L-19<sup>th</sup> Avenue Limited changes, combined service along 19<sup>th</sup> Avenue and Park Presidio Boulevard would operate every 5 minutes.
- **28L 19<sup>th</sup> Avenue Limited:** The 28L 19<sup>th</sup> Avenue Limited would be expanded to an all-day “rapid” service and extended at the south end to terminate at Geneva Avenue / Naples Street via Balboa Park BART station. (The existing segment south of Brotherhood Way serving Daly City BART would be discontinued.) At the north end, the 28L 19<sup>th</sup> Avenue Limited would be extended to Van Ness Avenue / North Point Street via Park Presidio Boulevard, Doyle Drive, Richardson Avenue, and Lombard Street, assuming portions of the discontinued segment of the 28 19<sup>th</sup> Avenue. With the combined 28 19<sup>th</sup> Avenue and 28L 19<sup>th</sup> Avenue Limited changes, combined service along 19<sup>th</sup> Avenue and Park Presidio Boulevard would operate every 5 minutes.
- **29 Sunset:** The segment north of Baker Beach in the Presidio, serving the Golden Gate Bridge Toll Plaza and the former Letterman Hospital, would be discontinued, with a minor route addition to serve the Pershing Drive loop. At the south end of the line, the route would be consolidated to two-way service on Gilman Avenue, eliminating the section on Fitzgerald Avenue. Midday service would improve from a bus every 15 minutes to a bus every 12 minutes.
- **88 Mission/BART Shuttle:** The segment west of Alemany Boulevard / Sickles Avenue, serving Parkmerced and neighborhoods bordering Lake Merced, would be discontinued, with some portions covered by the 17 Parkmerced and its extended service to Daly City BART. Service on the remaining section of the 88 Mission / BART Shuttle would be



increased from a bus every 8 to 9 minutes to a bus every 7 to 8 minutes during the weekday AM peak hour and from a bus every 10 minutes to a bus every 7 to 8 minutes during the weekday PM peak hour. As of December 5, 2009, the segment west of Alemany Boulevard / Sickles Avenue was discontinued.

### **Bicycle Network**

As part of the recently approved San Francisco Bicycle Plan, new near-term bicycle facilities are planned for Sagamore Street/Sickles Avenue (Project 5.12), Portola Drive (Project 6.6), Buckingham Way (Project 8.2), Holloway Avenue (Project 8.3), and John Muir Drive (Project 8.4), as follows:

- Along Sagamore Street and Sickles Avenue, new bicycle lanes would be established in the westbound direction of Sagamore Street between Plymouth Avenue and Orizaba Avenue, and in the eastbound direction of Sagamore Street between Orizaba Avenue and Capitol Avenue and of Sickles Avenue between Capitol Avenue and Alemany Boulevard. Two versions of these configurations are under consideration and would include the removal of parking and narrowing of travel lanes. However, no modifications to the intersection geometries would result.
- For Portola Drive, between Sloat Boulevard and O'Shaughnessy Boulevard, bicycle facilities would be established in both the eastbound and westbound directions. Two versions of the configuration are under consideration. One version would include the provision of bicycle lanes, with the narrowing or removal of travel lanes; the other version would provide bicycle lanes by narrowing travel lanes and would establish a bicycle route and install "sharrows" to encourage vehicles to share the travel lane with bicycles.
- At the approach to 19<sup>th</sup> Avenue, on-street parking along eastbound and westbound Buckingham Way would be eliminated to create bicycle lanes in each direction. This proposal would not affect the overall roadway conditions.
- Between Varela Avenue and Junipero Serra Boulevard, new bicycle lanes would be established along eastbound and westbound Holloway Avenue. Two options for creating these lanes are under consideration: either removing one travel lane in each direction or removing on-street parking. Under both configurations, there would be minor modifications to the eastbound and westbound approaches to intersections along Holloway Avenue, including at 19<sup>th</sup> Avenue and Junipero Serra Boulevard.
- Along John Muir Drive, bicycle lanes would be established in both the northbound and southbound directions between Lake Merced Boulevard and Skyline Drive with no changes to the street configuration.

The San Francisco Bicycle Plan also lists new bicycle facilities to be implemented in the long term. Long-term improvements are either major improvements to segments of the existing bicycle route network or are potential future additions of new streets and pathways to the bicycle network. Neither a schedule nor specific designs for the following projects have been developed:

- Brotherhood Way between Arch Street and Lake Merced Boulevard;
- Holloway Avenue between Harold Avenue and Junipero Serra Boulevard; and



- Monterey Boulevard between Junipero Serra Boulevard and San Benito Way.

#### **FUTURE BASELINE PLUS PUBLIC AND PRIVATE IMPROVEMENTS (TIER 4)**

Tier 4 consists of Tier 3 conditions, plus implementation of the transportation improvements associated with the foreseeable development projects. Multiple versions of the Tier 4 scenario, including the various modifications to the roadway network, transit alignments, transit operations, pedestrian facilities, and transit network, were developed in conjunction with San Francisco Planning Department and SFMTA staff through a series of collaborative workshops. From these efforts, three distinct sets of improvements were identified and combined into three variations for evaluation in this Corridor Study. All proposed modifications have been reviewed and conceptually approved as feasible by the appropriate City agencies. For those improvements that are to be carried forward as part of the individual development projects, separate environmental assessment and approval from non-City agencies (such as Caltrans or the California Public Utilities Commission) will be required.

The iterations of Tier 4 (referred to as Tier 4A, Tier 4B, and Tier 4C) include a similar set of improvements to the intersections surrounding the Parkmerced neighborhood, plus new/modified access points into Parkmerced. The primary distinction among the three versions is the alignment of the M Ocean View light rail line that currently operates in the median of 19<sup>th</sup> Avenue adjacent to Parkmerced. To enhance transit accessibility for their project, the Parkmerced Project sponsors have proposed to reroute the M Ocean View into their site. As a result, this study evaluates two versions of this reconfiguration of the alignment (Tier 4B and Tier 4C), plus a version that retains the existing M Ocean View alignment for comparison purposes (Tier 4A).

In addition, to accommodate the additional vehicular activity to the Parkmerced neighborhood, new left-turn access from northbound Junipero Serra Boulevard into a realigned Chumasero Drive is included in all three tiers; plus, a new left turn from 19<sup>th</sup> Avenue into a realigned Crespi Drive is included in Tier 4C.

Finally, a series of improvements to the pedestrian network, including new crosswalks and connection points, widened/realigned crosswalks, median refuge areas, tightened corner radii, and corner bulb-outs/sidewalk extensions, is included.

It should be noted that all proposed modifications to the existing street network, such as the new bulb-outs or the modifications to the corner radii, were reviewed from a traffic engineering perspective and designed to accommodate the appropriate design vehicles.

#### **Tier 4A**

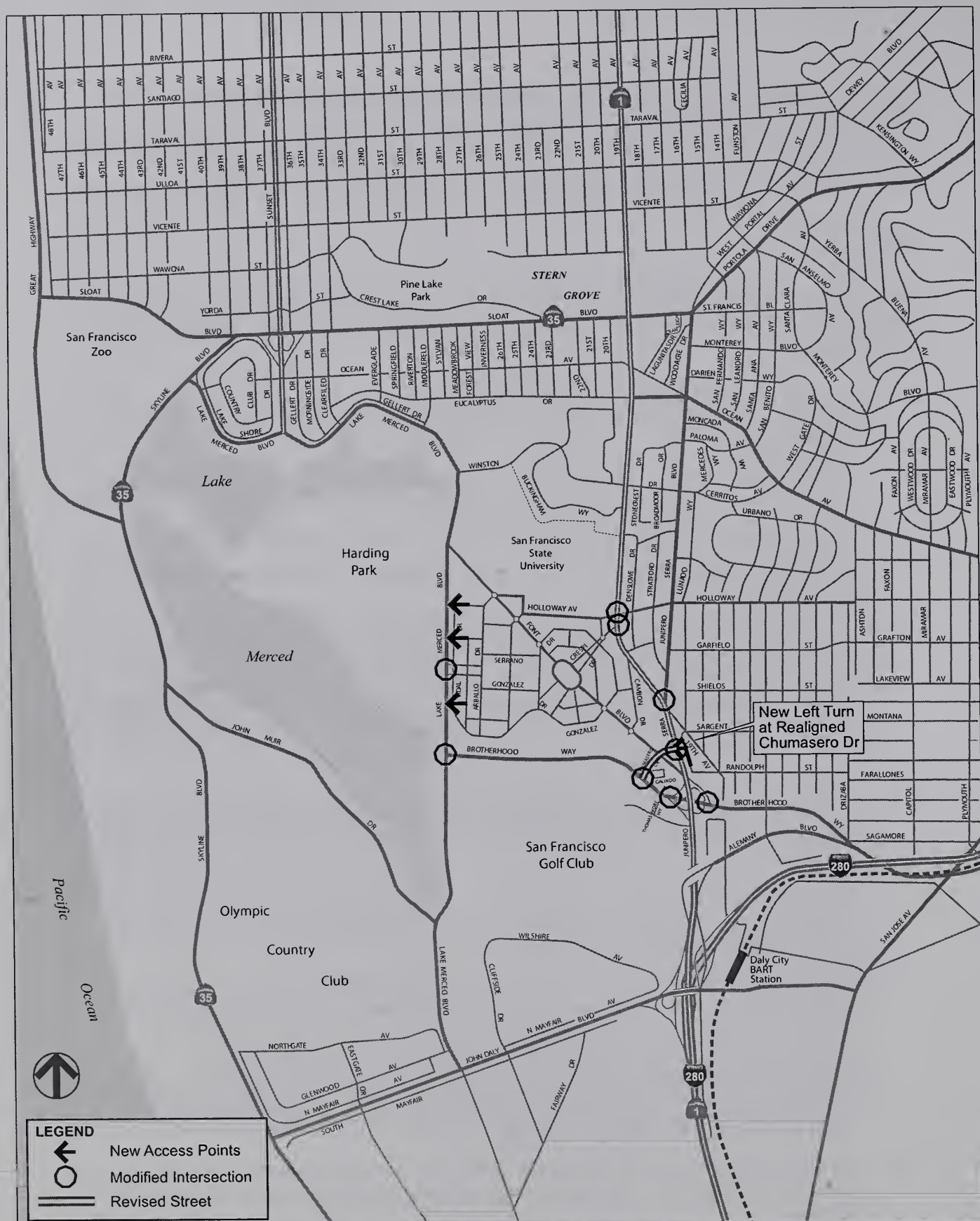
The following transportation improvements were assessed as part of Tier 4A, which include changes to the roadway and transit network that are proposed by and would be implemented as

part of the proposed development projects identified in Tier 2. These modifications are shown in **Figure III.10** and **Figure III.11**, and the conceptual plans for each location are provided in **Appendix B**. In general, these improvements were proposed to address existing problem locations, to enhance access to development sites or to address likely future problem locations.

#### Street Network

Modifications to several intersections along 19<sup>th</sup> Avenue, Brotherhood Way, and Lake Merced Boulevard, as well as reconfiguration of the streets internal to the Parkmerced neighborhood, are proposed as follows:

- 19<sup>th</sup> Avenue / Holloway Avenue: The channelized right turn from westbound Holloway Avenue to northbound 19<sup>th</sup> Avenue would be eliminated to improve pedestrian conditions.
- Crespi Drive: The street currently intersects with 19<sup>th</sup> Avenue immediately south of Holloway Avenue. Instead, it would be realigned to the south to intersect with 19<sup>th</sup> Avenue at a right angle and widened to provide two travel lanes in each direction.
- 19<sup>th</sup> Avenue / Crespi Drive: A new signalized intersection would be created with the realigned Crespi Drive.
- 19<sup>th</sup> Avenue / Junipero Serra Boulevard: The northbound 19<sup>th</sup> Avenue left turn to southbound Junipero Serra Boulevard movement would be eliminated to allow for improved operations of the M Ocean View light rail stop. An additional northbound Junipero Serra Boulevard left-turn pocket would be established by narrowing the existing median, allowing the approach to be restriped for three exclusive left-turn lanes and two exclusive through lanes.
- Chumasero Drive: Currently, Font Boulevard ends at Junipero Serra Boulevard, with a right-in/right-out configuration. Instead, Font Boulevard would end at Chumasero Drive, and Chumasero Drive would extend to Junipero Serra Boulevard, with a new right-angle intersection.
- Junipero Serra Boulevard / Chumasero Drive: A new signalized intersection would be created with the realigned Chumasero Drive, and a northbound left-turn pocket would be established within the existing median.
- Junipero Serra Boulevard / Brotherhood Way: At this grade-separated urban interchange, a third travel lane on Brotherhood Way would be added in both the eastbound and westbound directions by narrowing the shoulder areas. Eastbound, this would be an auxiliary lane between the off-ramp and on-ramp to facilitate merge/diverge activities. Westbound, this would be an additional lane starting at the off-ramp and continuing west to Chumasero Drive. In addition, the on- and off-ramp junctions with Brotherhood Way would be reconfigured with tighter turning radii.
- Chumasero Drive: Currently, Chumasero Drive connects with Brotherhood Way across from Thomas More Way. The roadway would be realigned to the west by approximately 200 feet.



SOURCE: AECOM, Turnstone Consulting

#### 19TH AVENUE CORRIDOR STUDY

FIGURE III.10: TIER 4A ROADWAY NETWORK CHANGES





SOURCE: AECOM, Turnstone Consulting

- Brotherhood Way / Chumasero Drive: This would be a new signalized intersection with the realigned Chumasero Drive, located about 200 feet west of the revised Brotherhood Way / Thomas More Way intersection. The traffic signals at these two intersections would be coordinated to minimize queuing between intersections. At Thomas More Way, the existing westbound left-turn pocket would be extended to provide additional queuing space.
- Lake Merced Boulevard / Brotherhood Way: The channelized right-turns from westbound Brotherhood Way to northbound Lake Merced Boulevard and from northbound Lake Merced Boulevard to eastbound Brotherhood Way would be eliminated to improve pedestrian conditions. The westbound approach would be restriped to provide two right-turn lanes and a left-turn lane; at the northbound approach, the former channelized right turn would be converted into a standard right-turn lane.
- Gonzalez Drive, Acevedo Avenue, and Vidal Drive: New streets would be provided for access to and from the Parkmerced neighborhood from Lake Merced Boulevard. Each street would have one travel lane in each direction.
- Lake Merced Boulevard / Gonzalez Drive: This would be a new signalized intersection with the new Gonzalez Drive. A southbound left-turn pocket and northbound right-turn pocket would be provided.
- Lake Merced Boulevard / Higuera Avenue: The intersection would be modified, and a southbound left-turn pocket and northbound right-turn pocket would be provided.
- Lake Merced Boulevard / Acevedo Avenue: This would be a new signalized intersection with the new Gonzalez Drive. A southbound left-turn pocket and northbound right-turn pocket would be provided.
- Lake Merced Boulevard / Vidal Drive: This would be a new signalized intersection with the new Vidal Drive. A southbound left-turn pocket and northbound right-turn pocket would be provided.

#### Transit Network

The following modifications to the existing and TEP-modified bus and light rails, as documented in Tier 3, would be included in Tier 4A. Routings would remain the same as under Tier 3, with the exception of the M-Oceanview and J-Church light rail lines.

- M Ocean View / J Church: The proposed reconfiguration of the Muni M Ocean View and J Church light rail lines in the TEP would be converted back to the existing configuration of just the M Ocean View line. However, the proposed service changes would remain. The current M Ocean View stop at 19<sup>th</sup> Avenue / Randolph Street (at the southeast corner of the 19<sup>th</sup> Avenue / Junipero Serra Boulevard intersection) would be enhanced with boarding islands and crosswalk connections to the sidewalks.
- 17 Parkmerced: Routing for the Muni 17 Parkmerced bus lines would be modified to account for the new Parkmerced street plan.
- 28 19<sup>th</sup> Avenue: The existing Muni 28 19<sup>th</sup> Avenue bus stop, which is located at the northwest corner of the 19<sup>th</sup> Avenue / Holloway Avenue intersection, would be relocated to the southwest corner of the intersection.



- 28L 19<sup>th</sup> Avenue Limited: The existing Muni 28 19<sup>th</sup> Avenue Limited bus stop, which is located at the northwest corner of the 19<sup>th</sup> Avenue / Holloway Avenue intersection, would be relocated to the southwest corner of the intersection.
- 29 Sunset: Routing for the Muni 29 Sunset bus lines would be modified to account for the new Parkmerced street plan. Primarily, this would include shifting the turnaround from Crespi Drive to off Holloway Avenue.

#### Pedestrian Network

New and/or revised crosswalks and improved sidewalk/corner facilities would be provided at the following intersections:

- 19<sup>th</sup> Avenue / Holloway Avenue: The crosswalks on the north side and south side of the intersection would be reconfigured, bulb-outs would be installed at the corners, and the radius of the northeast and southeast corners would be modified to reduce crossing distances and increase pedestrian waiting areas.
- 19<sup>th</sup> Avenue / Crespi Drive: With the new signalized intersection, crosswalks would be established across the north, south, and west sides of the intersection, a bulb-out would be installed at the southwest corner, and median areas would be created adjacent to the existing light-rail median to improve pedestrian connections, reduce crossing distances and provide refuge areas for crossing pedestrians.
- 19<sup>th</sup> Avenue / Junipero Serra Boulevard: Sidewalks across the northwest, northeast, and southeast sides of the intersection would be reconfigured to shorten the walk distances, and bulb-outs would be installed along the northeast side. In addition, at the channelized right turns from northbound Junipero Serra Boulevard to southbound 19<sup>th</sup> Avenue and from southbound Junipero Serra Boulevard to northbound 19<sup>th</sup> Avenue, stop signs would be installed and new crosswalks would be established.
- Junipero Serra Boulevard / Chumasero Drive: With the new signalized intersection, a new crosswalk would be provided across the north side (with a median refuge) and west side of the intersection, and a bulb-out would be provided at the southwest corner.
- Junipero Serra Boulevard / Brotherhood Way: Enhanced pedestrian facilities would be provided along eastbound Brotherhood Way, including high-visibility crosswalks across the on- and off-ramps on the south side of the interchange and the creation of a formal sidewalk.
- Brotherhood Way / Chumasero Drive: With the reconfiguration of the intersection, a new at-grade crosswalk would be added on the east side of the intersection – in addition to a crosswalk on the north side of the intersection. In addition, a sidewalk bulb would be created on the south side of the intersection to reduce the walk distances. It should be noted that the current pedestrian overcrossing would remain.
- Lake Merced Boulevard / Brotherhood Way: The existing crosswalk on the north side of the intersection would be relocated to the south side and would include a median pedestrian refuge area. In addition, the radius of the northeast and southeast corners would be modified and the travel lanes in the southbound direction would be narrowed to reduce crossing distances.



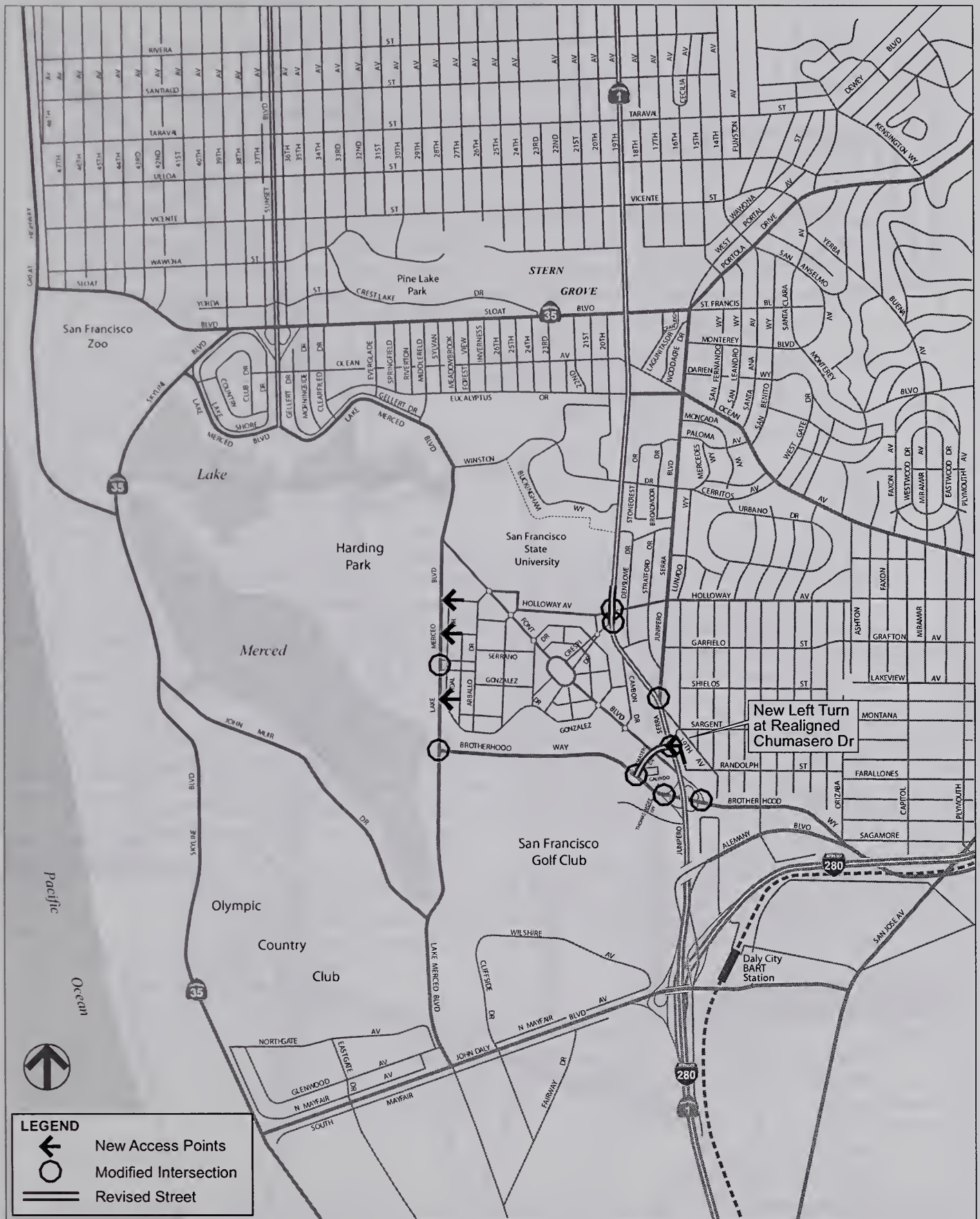
- Lake Merced Boulevard / Gonzalez Drive: At this new intersection, crosswalks would be provided on the north, east, and south sides of the intersection. In addition, the travel lanes in the southbound direction would be narrowed to reduce crossing distances.
- Lake Merced Boulevard / Higuera Avenue: At this revised intersection, crosswalks would be provided on the north, east, and south sides of the intersection. In addition, the travel lanes in the southbound direction would be narrowed to reduce crossing distances.
- Lake Merced Boulevard / Acevedo Avenue: At this new intersection, crosswalks would be provided on the north, east, and south sides of the intersection. In addition, the travel lanes in the southbound direction would be narrowed to reduce crossing distances.
- Lake Merced Boulevard / Vidal Drive: At this new intersection, crosswalks would be provided on the north, east, and south sides of the intersection. In addition, the travel lanes in the southbound direction would be narrowed to reduce crossing distances.

### Bicycle Network

No new bicycle facilities beyond those provided by the Bicycle Plan (analyzed as part of Tier 3) and modifications in the pedestrian facilities described above to accommodate bicycles would be created on City streets, with the exception of streets internal to Parkmerced.

### **Tier 4B**

The following transportation improvements were assessed as part of Tier 4B. The improvements would be the same as Tier 4A, with minor exceptions. Primarily, this scenario includes the proposed rerouting of the M Ocean View light rail line into the Parkmerced neighborhood at the intersection of 19<sup>th</sup> Avenue / Holloway Avenue and the extension of the J Church line rail line from Balboa Park to cover the southern portion of the M Ocean View line. This transit plan would be similar to that proposed with the TEP, but with a new terminal location for the M Ocean View. Under the proposed realignment, the existing SFSU station would be relocated into the Parkmerced neighborhood, two new M Ocean View stations would be constructed (including an end-of-the-line terminal), and a new terminal for the J Church would be constructed on the south side of the 19<sup>th</sup> Avenue / Holloway Avenue intersection. These modifications are shown in **Figure III.12** and **Figure III.13**, and the conceptual plans for each location are provided in **Appendix B**.



SOURCE: AECOM, Turnstone Consulting

19TH AVENUE CORRIDOR STUDY

FIGURE III.12: TIER 4B ROADWAY NETWORK CHANGES





SOURCE: AECOM, Turnstone Consulting



#### Street Network

Modifications to the following intersections would be included to accommodate for the changes to the light rail alignment:

- 19<sup>th</sup> Avenue / Holloway Avenue: A fourth southbound through lane would be established by narrowing the existing lanes and widening the approach by approximately 8 feet to the west. To account for the diagonal crossing of the intersection by the light rail, a 26-second all-red phase (except for northbound 19<sup>th</sup> Avenue approach) would be added to the intersection signalization plan.
- 19<sup>th</sup> Avenue / Crespi Drive: The fourth southbound travel lane would be extended south and converted into a right-turn lane into Crespi Drive.

#### Transit Network

The following modifications to the existing and TEP-modified bus and light rails, as documented in Tier 3, would be included in Tier 4B:

- M Ocean View: The light rail alignment would be reconfigured to divert into the Parkmerced neighborhood at the southwest corner of the 19<sup>th</sup> Avenue / Holloway Avenue intersection. The existing SFSU station would be relocated into the Parkmerced neighborhood, and two new stations would be created within Parkmerced (including a new end-of-the-line terminal at the intersection of Font Boulevard / Chumasero Drive). Operations of the M Ocean View would continue to be with two-car trains and the proposed TEP service frequency.
- J Church: The J Church would be extended from its current terminal at Balboa Park, along the southern portion of the M Ocean View alignment, to a new terminal located at the south side of the 19<sup>th</sup> Avenue / Holloway Avenue intersection or at the existing Stonestown station. Operations of the J Church would continue to be with one-car trains and the proposed TEP service frequency.
- 28 19<sup>th</sup> Avenue: The Muni 28 19<sup>th</sup> Avenue would continue to use its current bus stop at the northwest corner of the 19<sup>th</sup> Avenue / Holloway Avenue intersection, instead of being relocated to the southwest corner of the intersection. Since the J Church would be operating in the 19<sup>th</sup> Avenue median, there would be insufficient width to establish 2 new bus stops in this location.
- 28L 19<sup>th</sup> Avenue Limited: The Muni 28 19<sup>th</sup> Avenue Limited would continue to use its current bus stop at the northwest corner of the 19<sup>th</sup> Avenue / Holloway Avenue intersection, instead of being relocated to the southwest corner of the intersection. Since the J Church would be operating in the 19<sup>th</sup> Avenue median, there would be insufficient width to establish 2 new bus stops in this location.

#### Pedestrian Network

Relocation of the M Ocean View station from the median of 19th Avenue to the southwest corner of the 19th Avenue / Holloway Avenue intersection would serve to improve pedestrian conditions by reducing the crossing distance by riders from the west side of the street. In addition, the

pedestrian facilities described in Tier 4A would be modified to accommodate the train traversing the sidewalks and crosswalks, and additional pedestrian treatments would be provided to discourage and restrict use of the light rail right-of-way through the sidewalk and transit plaza.

#### Bicycle Network

No changes to the Tier 4A bicycle facilities would be included.

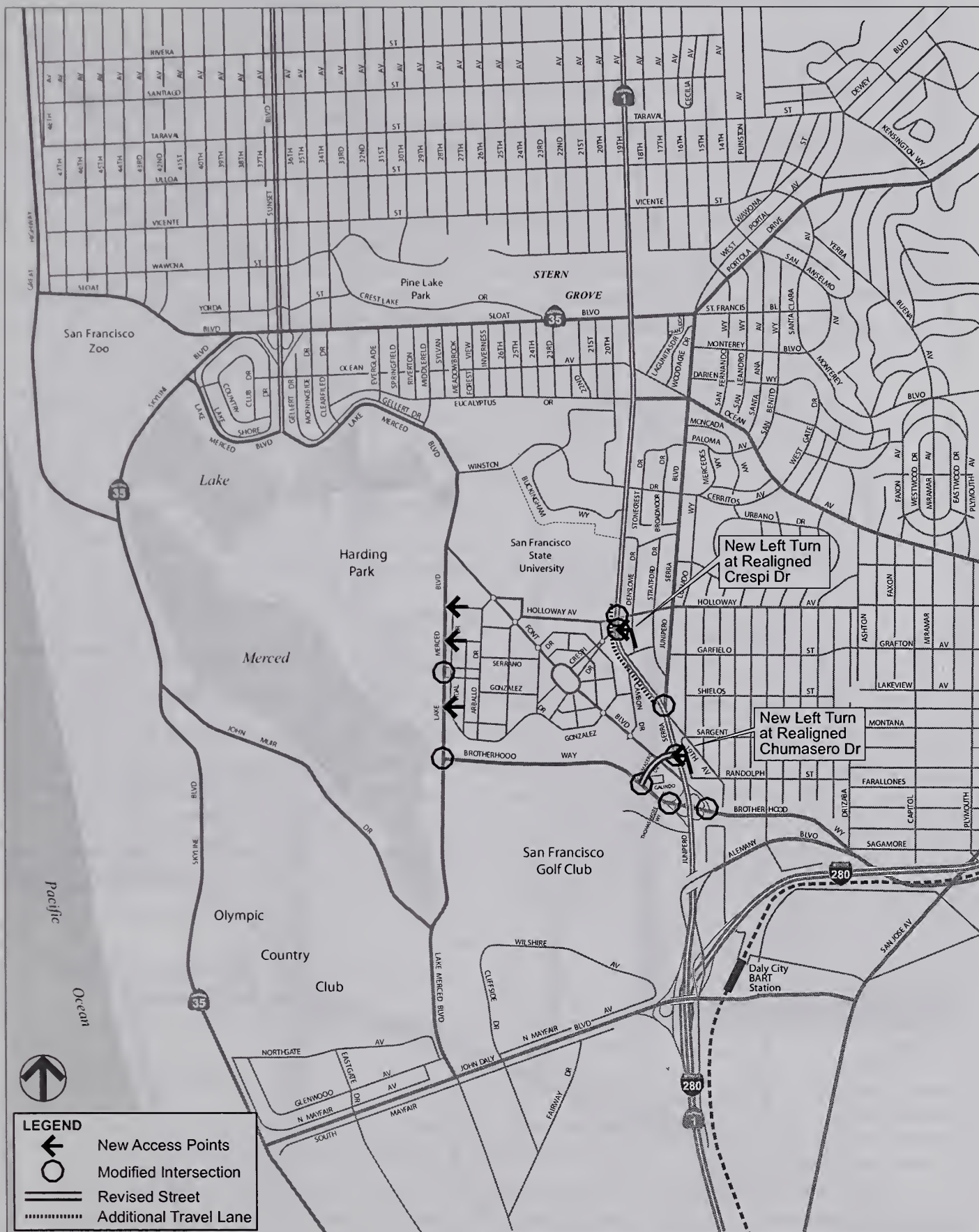
#### **Tier 4C**

The following transportation improvements were assessed as part of Tier 4C. The improvements would be the same as Tier 4A, with minor exceptions. Primarily, this scenario includes the proposed rerouting of the M Ocean View light rail line into the Parkmerced neighborhood at the intersection of 19<sup>th</sup> Avenue / Holloway Avenue. Under the proposed realignment, the existing SFSU station would be relocated into the Parkmerced neighborhood, and two new M Ocean View stations would be constructed (including an end-of-the-line terminal). In addition, a connection back to the existing alignment at 19<sup>th</sup> Avenue / Junipero Serra Boulevard would be constructed. The M Ocean View would have split service with short and long lines, with half of the trains ending at Parkmerced and half continuing to the current Balboa Park terminal. These modifications are shown in **Figure III.14** and **Figure III.15**, and the conceptual plans for each location are provided in **Appendix B**.

#### Street Network

Modifications to the following intersections would be included to accommodate for the changes to the light rail alignment:

- 19<sup>th</sup> Avenue / Holloway Avenue: A fourth southbound through lane would be established by narrowing the existing lanes and widening the approach by approximately 4 feet to the east and west. To account for the diagonal crossing of the intersection by the light rail, a 26-second all-red phase (except for northbound 19<sup>th</sup> Avenue approach) would be added to the intersection signalization plan.
- 19<sup>th</sup> Avenue / Crespi Drive: The fourth southbound travel lane would be extended south and converted into a through-right lane into Crespi Drive. (This additional through lane would continue south to Junipero Serra Boulevard.) To accommodate this additional southbound lane, the former light rail median within 19<sup>th</sup> Avenue would be narrowed. In addition, a northbound left-turn pocket would be created within the former light rail median.
- 19<sup>th</sup> Avenue / Junipero Serra Boulevard: A fourth lane for the southbound 19<sup>th</sup> Avenue right turn to Junipero Serra Boulevard movement would be created by narrowing the former light rail median. To account for the diagonal crossing of the intersection by the light rail, a 26-second all-red phase would be added to the intersection signalization plan.



SOURCE: AECOM, Turnstone Consulting





SOURCE: AECOM, Turnstone Consulting

#### Transit Network

The following modifications to the existing and TEP-modified bus and light rails, as documented in Tier 3, would be included in Tier 4C:

- **M Ocean View:** The light rail alignment would be reconfigured to divert into the Parkmerced neighborhood at the southwest corner of the 19<sup>th</sup> Avenue / Holloway Avenue intersection. The existing SFSU station would be relocated into the Parkmerced neighborhood, and two new stations would be created within Parkmerced (including a new end-of-the-line terminal at the intersection of Font Boulevard / Chumasero Drive). Within Parkmerced, the tracks would split, with a connection to the current alignment provided from the site at the west side of the 19<sup>th</sup> Avenue / Junipero Serra Boulevard intersection. Operations of the M Ocean View north of the split within Parkmerced would continue to be with two-car trains and the proposed TEP service frequency. However, service on the Balboa Park and Parkmerced terminals would be at half the TEP frequency.
- **J Church:** The J Church would continue to have its terminal at Balboa Park.
- **28 19<sup>th</sup> Avenue/28L 19<sup>th</sup> Avenue Limited:** As with Tier 4A, the bus stops would be relocated to the southwest corner of the 19<sup>th</sup> Avenue/Holloway Avenue intersection.

#### Pedestrian Network

Relocation of the M Ocean View station from the median of 19th Avenue to the southwest corner of the 19th Avenue / Holloway Avenue intersection would serve to improve pedestrian conditions by reducing the crossing distance by riders from the west side of the street. In addition, the pedestrian facilities described in Tier 4A would be modified to accommodate the train traversing the sidewalks and crosswalks, and additional pedestrian treatments would be provided to discourage and restrict use of the light rail right-of-way through the sidewalk and transit plaza. Similarly, the pedestrian facilities described in Tier 4A for the intersection of 19th Avenue / Junipero Serra Boulevard would also be modified to accommodate the train traversing the sidewalks and crosswalks.

#### Bicycle Network

Changes to the network would be the same as those proposed and described in Tier 4A.

#### **HOT Lane Variant**

For Tier 4A, Tier 4B, and Tier 4C, a variant analysis was conducted to provide a High-Occupancy/Toll (HOT) lane along southbound 19<sup>th</sup> Avenue from north of Holloway Avenue through Junipero Serra Boulevard. The HOT lane would allow transit vehicles (including shuttles) and carpool vehicles free travel, but private vehicles would be charged a user fee to use the HOT lane. The purpose of this type of facility would be to provide a travel time savings compared to the adjacent mixed-flow lanes, thereby giving a benefit to the users. Note that the



carpool policy (whether the lane would be restricted to two-person carpools or three-person carpools) and user fees would be set to ensure free-flow conditions in the HOT lane.

For all three scenarios, the lane would start about 220 feet north of Holloway Avenue and be designated for transit vehicles and vehicles making a right turn onto Crespi Drive only. The lane would continue through the intersection of Holloway Avenue to Crespi Drive. At Crespi Drive, the lane would allow the Crespi Drive vehicles to make a right turn into the Parkmerced neighborhood while the transit vehicles could continue through. South of Crespi Drive, and through the intersection with Junipero Serra Boulevard, the lane would converted into an HOT lane, with transit vehicles, carpool vehicles and paying private vehicles. After the Junipero Serra Boulevard / 19<sup>th</sup> Avenue intersection, this lane would convert back into a regular traffic lane.

For both Tier 4A and Tier 4B, the HOT lane would be located within a new southbound travel lane, which would be implemented by eliminating on-street parking and narrowing the travel lanes. For Tier 4C, the HOT lane would be established within the fourth southbound lane already proposed as part of the scenario, which was created by narrowing the former light rail median.

## **METHODOLOGY**

This section presents the methodology, approach, and assumptions used to develop conditions associated with each tier.

### **Tier 1**

Information on background growth in traffic and transit volumes resulting from new residential, commercial, and other development outside the study area was obtained using output from the SFCTA recent travel demand model, based on land use forecasts provided by the San Francisco Planning Department. Model output for Existing Conditions (year 2005) was compared with output for Tier 1 Cumulative Conditions (year 2030) to derive growth factors, which were then applied to existing data counts to obtain 2030 baseline traffic and transit ridership volumes.

It should be noted that all model output was examined to understand future traffic behavior and, where necessary, adjustments were made to ensure reasonable results. These adjustments include the following:

- Growth factors were scaled to account for the fact that the Existing Conditions model output represents the year 2005 and the traffic counts were collected in 2008 and 2009.
- Where common growth patterns were detected (e.g., similar levels of growth along corridors due to large amounts of traffic traveling through an area), growth factors were clustered to ensure uniform, consistent growth. In general, it was found that background growth levels along 19<sup>th</sup> Avenue, Junipero Serra Boulevard, and Lake Merced Boulevard would be similar.



- Irregular traffic activity was noted in the vicinity of the Sunset Boulevard / Sloat Boulevard intersection. Under Cumulative Conditions, the model output showed vehicles diverting from Sunset Boulevard onto neighborhood streets due to the over-assignment of vehicles. In this case, the model was assigning traffic to nearby streets with available capacity; however, this behavior is unlikely in reality. As a result, the diverted trips were manually reassigned to the appropriate roadways, and growth factors were recalculated.

In general, traffic volume growth at intersections throughout the study area was found to be between 0.0 and 2.7 percent per year (0.0 to 58.5 percent total growth to the year 2030). Specifically, at intersections along 19<sup>th</sup> Avenue, growth was generally found to be between 0.5 and 0.9 percent per year (between 10.5 and 20.3 percent overall growth), representing increases of approximately 250 to 320 vehicles during the weekday AM peak hour and 435 to 625 vehicles during the weekday PM peak hour. By applying these growth factors to existing traffic counts, Tier 1 Cumulative Conditions traffic volumes were developed.

For transit, background growth was obtained from the “quickboards” database produced by the SFCTA travel demand model. Due to the variability and uncertainty in the way the model assigns transit demand to available transit facilities, ridership growth was calculated by summing the total boardings across the screenlines for the weekday AM and PM peak periods, instead of for each bus or light rail line. This aggregated screenline growth was then applied to existing TEP ridership for all lines within the screenline to obtain Tier 1 ridership.

In addition, no modifications to the existing roadway and transit networks were assumed as part of Tier 1.

#### **Tier 2**

To derive Tier 2 Cumulative Conditions traffic and transit volumes, trips associated with the eight foreseeable development projects were layered over Tier 1 Cumulative Conditions.

A summary of the land use program for each development project is provided in **Table III.10**. A summary of each project’s weekday daily person-trips, overall mode split, and external vehicle trips is provided in **Table III.11**, **Table III.12**, and **Table III.13**. **Table III.14** summarizes external person-trips by mode and external vehicle-trips for the weekday AM and PM peak hours. Detailed travel demand calculations are included in **Appendix C**.

**Table III.10: Tier 2 Development Projects Land Use Program**

Project	Residential (units)	Office (sq ft)	University (enrollment) <sup>1</sup>	Elem. School (sq ft)	General Retail (sq ft)	Movie Theater (seats)	Rec. Center (sq ft)
Parkmerced Project (total after buildout)	8,900	80,000		25,000	230,000		64,000
700 Font Boulevard	340						
445 Wawona Street (Arden Wood)	142						
77-111 Cambon Drive	199				15,000		
800 Brotherhood Way	182						
SFSU Campus Master Plan	657		5,000				
Stonestown Galleria					180,000	2,000	
1150 Ocean Avenue	175				35,000		
<b>Total</b>	<b>8,912</b>	<b>80,000</b>	<b>5,000</b>	<b>25,000</b>	<b>460,000</b>	<b>2,000</b>	<b>64,000</b>

Notes:

<sup>1</sup> Within the SFCTA model, the additional SFSU enrollment was translated to new employees (711 faculty/staff based on the average ratio of students to staffing).

Source: AECOM, 2009; Fehr + Peers, 2009.

**Table III.11: Tier 2 Development Projects Weekday Daily Person-Trips**

Project	Weekday Daily Person-Trips
Parkmerced Project (total after buildout)	96,684
700 Font Boulevard	2,146
445 Wawona Street (Arden Wood)	797
77-111 Cambon Drive	2,812
800 Brotherhood Way	1,090
SFSU Campus Master Plan	15,177
Stonestown Galleria	26,458
1150 Ocean Avenue	10,726
<b>Total</b>	<b>155,890</b>

Source: AECOM, 2009; Fehr + Peers, 2009.

**Table III.12: Tier 2 Development Projects Overall Mode Split**

Project	Vehicle	Transit	Other
<b>Weekday AM Peak Hour</b>			
Parkmerced Project (total)	80.7%	16.3%	3.0%
700 Font Boulevard	59.8%	20.1%	20.1%
445 Wawona Street (Arden Wood)	68.6%	18.6%	12.8%
77-111 Cambon Drive	63.2%	17.4%	19.4%
800 Brotherhood Way	70.3%	10.9%	18.8%
SFSU Campus Master Plan	47.5%	34.0%	18.5%
Stonestown Galleria	74.9%	16.5%	8.6%
1150 Ocean Avenue	64.4%	21.8%	13.8%
<b>Weekday PM Peak Hour</b>			
Parkmerced Project (total)	81.5%	15.5%	3.0%
700 Font Boulevard	63.7%	12.7%	23.6%
445 Wawona Street (Arden Wood)	74.8%	13.5%	11.7%
77-111 Cambon Drive	63.7%	10.7%	25.6%
800 Brotherhood Way	68.9%	7.4%	23.7%
SFSU Campus Master Plan	50.2%	30.8%	19.0%
Stonestown Galleria	82.8%	9.2%	8.0%
1150 Ocean Avenue	64.5%	17.6%	17.9%

Source: AECOM, 2009; Fehr + Peers, 2009.

**Table III.13: Tier 2 Development Projects External Peak Hour Vehicle Trips**

Project	Weekday AM Peak Hour		Weekday PM Peak Hour		Weekend Midday Peak Hour	
	In	Out	In	Out	In	Out
Parkmerced Project (total)	847	2,105	2,641	1,882	2,472	1,718
700 Font Boulevard	64	127	114	85	46	48
445 Wawona Street (Arden Wood)	22	64	63	44	21	21
77-111 Cambon Drive	97	145	124	92	79	78
800 Brotherhood Way	30	124	125	63	27	26
SFSU Campus Master Plan	331	319	321	328	143	155
Stonestown Galleria	269	129	584	800	993	1,198
1150 Ocean Avenue	42	157	206	175	253	257
<b>Total</b>	<b>1,702</b>	<b>3,170</b>	<b>4,178</b>	<b>3,469</b>	<b>4,034</b>	<b>3,501</b>

Source: AECOM, 2009; Fehr + Peers, 2009.



**Table III.14: Tier 2 Development Projects External Peak Hour Transit Trips**

Project	Weekday AM Peak Hour		Weekday PM Peak Hour	
	In	Out	In	Out
Parkmerced Project (total)	322	933	1,005	658
700 Font Boulevard	25	51	27	20
445 Wawona Street (Arden Wood)	7	20	13	9
77-111 Cambon Drive	43	65	62	46
800 Brotherhood Way	5	22	15	8
SFSU Campus Master Plan	268	259	224	228
Stonestown Galleria	66	31	71	97
1150 Ocean Avenue	15	84	95	72
<b>Total</b>	<b>751</b>	<b>1,465</b>	<b>1,512</b>	<b>1,138</b>

Source: AECOM, 2009; Fehr + Peers, 2009.

Although the travel demand characteristics of each foreseeable development project may slightly vary for each tier (for instance, the percentage of transit trips for Stonestown may change with implementation of the SFMTA TEP changes in Tier 3), for the purpose of this analysis, it was assumed that the total travel demand and the peak hour vehicle trips and transit trips would remain constant. This would allow for a more consistent comparison between tiers, allowing the physical effects of the proposed transportation changes to be isolated.

The assignments of the vehicle trips and transit trips to the local and regional roadway and transit network were developed using the following assumptions:

- **Vehicle assignments:** For each project, the origins and destinations of the vehicle trips were disaggregated into a series of zones throughout San Francisco and the region. For each zone, a series of assignments was developed based on the shortest path of travel plus the existing and projected future congestion levels on the surrounding streets. It should be noted that since Tier 2 did not include any of the transportation projects proposed by the individual developments, assignments were not made to new streets and connections.
- **Transit assignments:** The assignment of transit trips generated by each of the various projects generally assumes that riders select the “shortest route,” minimizing the number of transfers, the walking distance to and from stop locations, and the waiting time at stops. In cases where the rider could use more than one route, existing ridership data (such as from the TEP or from resident surveys for Parkmerced) was reviewed to determine an approximation of the preferential selection of specific routes. For the planned Parkmerced shuttle to BART, ridership was estimated directly from the Parkmerced transit origin/destination patterns, with the assumption that all BART riders would use the Parkmerced shuttle.

In addition, no modifications to the existing roadway and transit networks were assumed as part of Tier 2, with the exception of the planned Parkmerced shuttle.

### Tier 3

In Tier 3, the intersection and transit analyses were modified to account for the projects proposed by the various public agencies, as follows.

- Upgraded traffic signals on 19<sup>th</sup> Avenue: The planned new traffic signals along 19<sup>th</sup> Avenue would include transit signal priority treatments, which would allow transit vehicles to hold green phases for a short duration as they approach an intersection. This change would improve transit travel times and reliability but would have a minimal effect on traffic flow as this hold would not be allowed to happen in consecutive cycles and the green phase with the subsequent cycle would be reduced.
- New bicycle lanes / traffic calming: Based on the preliminary plans for the new bicycle lanes in the study area and the proposed traffic calming on Holloway Avenue and Garfield Avenue, there would be no material changes to the intersection signalization or striping plans that affect the study intersections.
- SFMTA TEP recommendations: The changes proposed under the TEP that would have a material effect on the screenline analysis—in particular, changes to frequency, area served, and vehicle type or formation—were incorporated into the line capacity calculations and project transit assignments. In cases where transit lines were removed from a screenline (mostly on corridors with duplicate service), ridership was shifted to the remaining lines. Although it is likely that the elimination of lines or segments of lines would result in a decrease in ridership, this approach allows for a conservative analysis of transit conditions. In cases where transit lines were added to a screenline, a portion of the ridership on other lines already serving the screenline was shifted to the new route.

### Tier 4

As part of Tier 4, numerous changes to the existing roadway network were included, such as modifications to intersection configurations, new streets and access points, new crosswalk locations, and rerouting in transit lines. The following sections outline some of the key methodologies for the analysis of these modifications.

- New left turns and all-red times: The proposed new left turns from northbound Junipero Serra Boulevard to Chumase Drive (Tier 4A, Tier 4B, and Tier 4C) and from northbound 19<sup>th</sup> Avenue to Crespi Drive (Tier 4C only), and the 26-second all-red phases at 19<sup>th</sup> Avenue / Holloway Avenue (Tier 4B and Tier 4C) and at Junipero Serra Boulevard (Tier 4C only) could affect the overall flow of traffic along the corridor, as the traffic signals are coordinated between intersections. To evaluate the effect of these elements, a simulation analysis was conducted (see below) and modifications to the intersection analysis parameters were incorporated to reflect the observed influence on roadway capacity.
- New access points: The assignment of vehicle trips generated by each of the foreseeable development projects assumed that drivers would select the shortest and most direct route, minimizing the number of turns and distance traveled on congested roadways. In

particular, the new access points along Lake Merced Boulevard for the Parkmerced project were assumed to draw traffic that would otherwise use the single access point at Higuera Avenue. The new left turn from northbound Junipero Serra Boulevard into Chumasero Drive was assumed to draw traffic that would otherwise use the Chumasero Drive access at Brotherhood Way. The new left turn from northbound 19<sup>th</sup> Avenue into Crespi Drive was assumed to draw traffic that would otherwise loop via northbound Junipero Serra Boulevard, westbound Holloway Avenue, southbound 19<sup>th</sup> Avenue, and westbound Crespi Drive, as well as a portion of the traffic using the new left turn into Chumasero Drive. As such, a portion of the existing and future traffic volumes were reassigned to the new access points based on the attractiveness of each new facility to serve the trip's origin and destination.

- **Corner bulbs and sidewalk extensions:** At several intersections, new corner bulbs and wider sidewalks were proposed to be implemented to improve pedestrian conditions. These facilities would result in reduced walking distances, and thereby shorter pedestrian walk phases. At each location, a conservative bulb width of four feet was assumed, and the pedestrian walk times (and the corresponding intersection green times) were recalculated and applied to the analyzed signal timing plan.
- **Reoriented crosswalks:** At the intersection of 19<sup>th</sup> Avenue / Holloway Avenue and Junipero Serra Boulevard / 19<sup>th</sup> Avenue, it was proposed to relocate the stop bars farther from the intersection to allow for wider and more direct crosswalks. At these locations, it would take longer for vehicles to travel through the intersection, affecting its operation. To account for these times, the yellow and all-red phases for the affected approaches were increased in the analyzed signal timing plan.
- **Transit rerouting:** As previously discussed, to be conservative it was assumed that the rerouting and reconfiguration of the transit lines, including the M Ocean View, would not generate additional riders over and above the number already projected for 19<sup>th</sup> Avenue between Junipero Serra Boulevard and Holloway Avenue. In the scenario where the J Church assumes the portion of the M Ocean View alignment south of Junipero Serra Boulevard (Tier 4B), the ridership formerly on the M Ocean View for this section was shifted onto the J Church, with no loss or other shifts in ridership. In the case where the portion of the M Ocean View south of Junipero Serra Boulevard is served by only half of the trains (Tier 4C), no loss in ridership was assumed.

### **Synchro / SimTraffic Simulation**

The Traffix software, as used for the intersection level of service analysis in this report, has limited ability to account for conditions at upstream and downstream locations. In addition, the traffic signals along 19<sup>th</sup> Avenue are coordinated, which allows for vehicles to travel through multiple intersections without stopping. To address these limitations, a supplemental assessment was conducted using a simulation model (the Synchro / SimTraffic 7 software). For these evaluations, the intersections of 19<sup>th</sup> Avenue / Holloway Avenue, 19<sup>th</sup> Avenue / Crespi Drive, and Junipero Serra Boulevard / 19<sup>th</sup> Avenue were modeled for Tier 3 and Tier 4 conditions to determine how the various transportation network changes would affect general traffic flow along 19<sup>th</sup> Avenue. To conduct this work, the Synchro / SimTraffic model was used to optimize the transportation network, as would be done when new or enhanced signals are implemented. Network characteristics such as



signal timing, signal coordination and train priority were modified to accurately assess the interactions and minimize delays for all modes of transportation. Based on the optimized network, a series of adjustment factors was derived and applied to the Traffic analysis.

#### **OTHER TRANSPORTATION PROJECTS DEFINED BUT NOT ANALYZED**

During the Tier 4 development process, additional concepts for improvements and modifications to transit service (and their related modifications to the roadway network) were proposed and considered. However, it was the collective determination that these concepts did not provide the same level of benefits and resulted in unacceptable secondary effects to area conditions. Concepts considered included the following:

- Rerouting all service for the M Ocean View into the Parkmerced neighborhood at the southwest corner of 19<sup>th</sup> Avenue / Holloway Avenue and returning to its current alignment at the west corner of 19<sup>th</sup> Avenue / Juniper Serra Boulevard: In general, although this configuration would provide enhanced transit access for the Parkmerced neighborhood, it would result in a noticeable degradation in service for the M Ocean View due to its longer and less direct configuration (in comparison to the proposed Tier 4C configuration, which would have half the service terminate inside Parkmerced).
- Rerouting the M Ocean View into the Parkmerced neighborhood at the southwest corner of 19<sup>th</sup> Avenue / Holloway Avenue with a new terminal inside the site, plus extending the J Church along the former M Ocean View alignment and rerouting it into the Parkmerced neighborhood at the west corner of 19<sup>th</sup> Avenue / Junipero Serra Boulevard with a new terminal inside the site. Within the Parkmerced neighborhood, the two lines would share one set of tracks with combined service to two stations. In general, this configuration would result in potential operational difficulties between the two lines with the common tracks and shared stations.
- Wider bulb-outs and tighter corner radii: When the proposed street modifications were reviewed for traffic engineering design standards, these facilities were found to result in impacts on vehicular circulation; for instance, trucks would need to cross center lines into the opposing traffic direction to make turns around the wider bulb-outs. The configurations of these facilities were therefore modified until they worked from a design perspective.
- Different configurations for new/realigned streets: For the proposed realignment of Crespi Drive and Chumasero Drive, and for the proposed new access points of Gonzalez Drive, Acevedo Avenue, and Vidal Drive, multiple iterations of the streets were considered, including different number of travel lanes, the provision of turning movements, and the connections to the adjacent streets. These concepts were determined to result in secondary impacts, as compared to those included in the project evaluation.
- Reconfiguration of Junipero Serra Boulevard / Brotherhood Way interchange: Multiple design studies were conducted to determine if substantial modifications to the urban interchange were feasible, including reconfiguration of the on- and off-ramps, increases to the merge/diverge distances, combining on- and off-ramps, and other potential elements. Overall, it was determined that the available right-of-way would be insufficient for a major reconfiguration of the interchange, and the grade differentials between Junipero Serra Boulevard and Brotherhood Way would limit the possibility for modifications to the ramps.

## D. FUTURE BASELINE CONDITIONS (TIER 1 AND TIER 2)

This chapter summarizes intersection operations, pedestrian, bicycle, and transit analysis for the Future Baseline Conditions.

### INTERSECTION ANALYSIS

For purposes of the intersection analysis, Tier 1 and Tier 2 conditions combined represent the Future Baseline scenario. A comparison between the Future Baseline scenario (Tier 1 and Tier 2) and Existing Conditions was conducted to determine the number of intersections that would operate at an unacceptable level of service (LOS E or F), either due to application of background growth or the increase in traffic volume due to the foreseeable development projects.

A comparison of intersection LOS under Existing Conditions, Tier 1 Cumulative Conditions, and Tier 2 Cumulative Conditions is summarized in **Table III.15** and **Table III.16**. Detailed LOS calculations and figures are provided in **Appendix D**.

As indicated in **Table III.15** and **Table III.16**, overall conditions throughout the study area would substantially worsen as a result of the addition of background growth and the foreseeable development projects associated with Future Baseline (Tier 1 and Tier 2) Conditions.

Intersections along major arterials such as 19<sup>th</sup> Avenue, Sunset Boulevard, and Lake Merced Boulevard would generally operate under unacceptable conditions (LOS E or LOS F), resulting in substantial delays to traffic flows.

Under Tier 1 weekday AM peak hour conditions, the following four intersections would worsen to unacceptable conditions (from LOS D or better to LOS E or F) when compared to Existing Conditions:

- 16. 19<sup>th</sup> Avenue / Holloway Avenue (LOS D to LOS E);
- 17. 19<sup>th</sup> Avenue / Crespi Avenue (LOS D to LOS E);
- 25. Lake Merced Boulevard / Font Boulevard (LOS D to LOS E); and
- 27. Lake Merced Boulevard / Brotherhood Way (LOS D to LOS F).

Under Tier 2 weekday AM peak hour conditions, the following two intersections would worsen to unacceptable conditions (from LOS D or better to LOS E or F) when compared to Tier 1 conditions:

- 14. 19<sup>th</sup> Avenue / Winston Drive (LOS D to LOS F); and
- 24. Lake Merced Boulevard / Winston Drive (LOS C to LOS F).

**Table III.15: Intersection Level of Service – Tier 1 and Tier 2 (Weekday Peak Hours)**

Intersection		Peak Hour	Existing		Tier 1		Tier 2	
			LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>
1	Claremont Blvd./ Dewey Blvd./ Taraval St. <sup>2</sup>	AM	A	6.8	A	6.9	A	7.0
		PM	A	6.7	A	7.2	A	7.4
2	Santa Clara Ave./ Vicente St./ Portola Dr.	AM	C	26.5	C	30.5	D	40.2
		PM	C	29.4	C	31.2	D	39.0
3	Junipero Serra Blvd./ Sloat Blvd./ St. Francis Blvd.	AM	E	65.2	F	>80 / 1.09	F	>80 / 1.09
		PM	F	>80 / 1.01	F	>80 / 1.13	F	>80 / 1.17
4	Junipero Serra Blvd. / Ocean Ave. / Eucalyptus Dr.	AM	C	31.7	D	41.7	D	46.9
		PM	C	31.8	D	41.0	E	70.2
5	Junipero Serra Blvd. / Winston Dr.	AM	C	29.1	D	35.7	D	38.3
		PM	C	28.4	C	30.8	D	49.3
6	Junipero Serra Blvd. / Holloway Ave.	AM	C	29.8	C	33.2	D	36.9
		PM	C	28.6	C	30.7	D	37.4
7	Junipero Serra Blvd. / 19 <sup>th</sup> Ave.	AM	E	57.9	F	>80 / 0.95	F	>80 / 0.97
		PM	F	>80 / 1.15	F	>80 / 1.25	F	>80 / 1.30
8	Junipero Serra Blvd. / John Daly Blvd. / NB Ramps	AM	D	39.7	D	40.4	D	40.5
		PM	E	74.0	F	>80 / 1.31	F	>80 / 1.40
9	Junipero Serra Blvd. / John Daly Blvd. / SB Ramps	AM	B	19.8	C	20.5	C	20.4
		PM	C	33.6	D	52.5	F	1.17
10	19 <sup>th</sup> Ave. / Taraval St.	AM	B	19.7	C	26.9	C	28.9
		PM	B	16.4	B	20.0	C	24.0
11	19 <sup>th</sup> Ave. / Sloat Blvd.	AM	E	58.1	F	>80 / 1.48	F	>80 / 1.51
		PM	F	>80 / 1.54	F	>80 / 1.56	F	>80 / 1.63
12	19 <sup>th</sup> Ave. / Ocean Ave.	AM	C	23.5	D	46.9	D	46.1
		PM	F	>80 / 1.41	F	>80 / 1.58	F	>80 / 1.63
13	19 <sup>th</sup> Ave. / Eucalyptus Dr.	AM	B	14.3	C	22.7	C	23.1
		PM	D	49.9	E	72.7	F	>80 / 1.18
14	19 <sup>th</sup> Ave. / Winston Dr.	AM	D	37.9	D	52.9	F	>80 / 1.32
		PM	F	>80 / 1.29	F	>80 / 1.34	F	>80 / 1.70
15	19 <sup>th</sup> Ave. / Buckingham Wy. <sup>3</sup>	AM	E	47.7	F	>50 / 0.70	F	>50 / 0.83
		PM	F	>50 / 1.31	F	>50 / 1.81	F	>50 / 2.20
16	19 <sup>th</sup> Ave. / Holloway Ave.	AM	D	40.6	E	65.9	E	59.7
		PM	E	61.2	F	>80 / 0.88	F	>80 / 1.03
17	19 <sup>th</sup> Ave. / Crespi Dr.	AM	D	37.3	E	58.1	E	64.8
		PM	B	19.7	D	53.7	E	69.9
18	Chumasero Dr. / Brotherhood Wy.	AM	E	77.5	F	>80 / 0.97	F	>80 / 1.48
		PM	E	68.1	F	>80 / 1.12	F	>80 / 1.74
19	Sunset Blvd. / Taraval St.	AM	B	17.7	C	21.8	D	43.0
		PM	C	20.9	D	53.1	F	>80 / 0.96
20	Sunset Blvd. / Ocean Ave.	AM	B	11.8	B	12.1	B	13.7
		PM	B	12.0	B	13.5	C	30.5



Table III.15 (continued)

Intersection		Peak Hour	Existing		Tier 1		Tier 2	
			LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>
21	Skyline Blvd. / Sloat Blvd. / 39 <sup>th</sup> Ave. <sup>4</sup>	AM	B	14.5	C	17.2	C	17.5
		PM	C	21.4	D	27.9	D	29.4
22	Skyline Blvd. / Lk. Merced Blvd. (North) <sup>3</sup>	AM	B	11.9	C	15.2	C	15.1
		PM	B	13.1	C	17.7	C	17.5
	Skyline Blvd. / Lk. Merced Blvd. (South) <sup>3,5</sup>	AM	D	29.3	F	>50 / 0.39	F	>50 / 0.38
		PM	E	42.8	F	>50 / 0.92	F	>50 / 0.90
23	Sunset Blvd. / Lake Merced Blvd. <sup>3</sup>	AM	<b>F</b>	<b>&gt;50 / 0.54</b>	<b>F</b>	<b>&gt;50 / 0.63</b>	<b>F</b>	<b>&gt;50 / 1.10</b>
		PM	D	28.2	<b>F</b>	<b>&gt;50 / 1.37</b>	<b>F</b>	<b>&gt;50 / 2.49</b>
24	Lake Merced Blvd. / Winston Dr.	AM	C	21.9	C	29.2	<b>F</b>	<b>&gt;80 / 0.81</b>
		PM	D	48.2	<b>F</b>	<b>&gt;80 / 0.98</b>	<b>F</b>	<b>&gt;80 / 1.37</b>
25	Lake Merced Blvd. / Font Blvd.	AM	D	39.1	E	64.6	<b>F</b>	<b>&gt;80 / 1.47</b>
		PM	C	32.8	D	49.7	<b>F</b>	<b>&gt;80 / 1.64</b>
26	Lake Merced Blvd. / Higuera Ave.	AM	E	66.9	<b>F</b>	<b>&gt;80 / 0.79</b>	<b>F</b>	<b>&gt;80 / 1.20</b>
		PM	E	59.2	<b>F</b>	<b>&gt;80 / 0.85</b>	<b>F</b>	<b>&gt;80 / 1.57</b>
27	Lake Merced Blvd. / Brotherhood Wy.	AM	D	42.7	<b>F</b>	<b>&gt;80 / 2.12</b>	<b>F</b>	<b>&gt;80 / 2.45</b>
		PM	C	30.3	<b>F</b>	<b>&gt;80 / 2.46</b>	<b>F</b>	<b>&gt;80 / 2.86</b>

Notes:

**Bold** indicates intersection operating at unacceptable level of service (LOS).<sup>1</sup> Delay presented in seconds per vehicle. For intersections that operate at LOS F, the delay per vehicle and volume-to-capacity (V/C) ratio are presented.<sup>2</sup> Although intersection is designed as a roundabout, all approaches are controlled by stop signs; as such, it was analyzed as an all-way stop-controlled intersection.<sup>3</sup> OWSC (one-way stop-controlled) intersection.<sup>4</sup> AWSC (all-way stop-controlled) intersection.<sup>5</sup> Though the intersection would operate at an unacceptable LOS, the conditions of the Manual on Uniform Traffic Control Devices (MUTCD) peak hour volume signal warrant would not be met.

Source: AECOM, 2009.

**Table III.16: Intersection Level of Service – Tier 1 and Tier 2 (Weekend Peak Hour)**

Intersection		Existing		Tier 1		Tier 2	
		LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>
3	Junipero Serra Blvd. / Sloat Blvd. / St. Francis Blvd.	<b>F</b>	<b>&gt;80 / 1.00</b>	<b>F</b>	<b>&gt;80 / 1.11</b>	<b>F</b>	<b>&gt;80 / 1.18</b>
7	Junipero Serra Blvd. / 19 <sup>th</sup> Ave.	<b>F</b>	<b>&gt;80 / 1.64</b>	<b>F</b>	<b>&gt;80 / 1.78</b>	<b>F</b>	<b>&gt;80 / 1.86</b>
11	19 <sup>th</sup> Ave. / Sloat Blvd.	<b>E</b>	<b>56.0</b>	<b>F</b>	<b>&gt;80 / 1.51</b>	<b>F</b>	<b>&gt;80 / 1.58</b>
14	19 <sup>th</sup> Ave. / Winston Dr.	D	42.0	D	40.4	<b>F</b>	<b>&gt;80 / 1.71</b>
15	19 <sup>th</sup> Ave. / Buckingham Wy. <sup>2</sup>	D	30.2	<b>E</b>	<b>49.2</b>	<b>F</b>	<b>&gt;50 / 0.95</b>
16	19 <sup>th</sup> Ave. / Holloway Ave.	B	14.3	C	25.7	D	41.8
27	Lake Merced Blvd. / Brotherhood Wy.	C	25.1	<b>E</b>	<b>59.2</b>	<b>F</b>	<b>&gt;80 / 2.44</b>

*Notes:***Bold** indicates intersection operating at unacceptable level of service (LOS).

AWSC = All-way stop-controlled

OWSC = One way stop-controlled

<sup>1</sup> Delay presented in seconds per vehicle. For intersections that operate at LOS F, the delay per vehicle and volume-to-capacity (V/C) ratio are presented.<sup>2</sup> OWSC (one-way stop-controlled) intersection.*Source:* AECOM, 2009.

Under Tier 1 weekday PM peak hour conditions, the following four intersections would worsen to unacceptable conditions (from LOS D or better to LOS E or F) when compared to Existing conditions:

- 13. 19<sup>th</sup> Avenue / Eucalyptus Drive (LOS D to LOS E);
- 23. Sunset Boulevard / Lake Merced Boulevard (LOS D to LOS F);
- 24. Lake Merced Boulevard / Winston Drive (LOS D to LOS F); and
- 27. Lake Merced Boulevard / Brotherhood Way (LOS C to LOS F).

Under Tier 2 weekday PM peak hour conditions, the following five intersections would worsen to unacceptable conditions (from LOS D or better to LOS E or F) when compared to Tier 1 conditions:

- 4. Junipero Serra Boulevard / Ocean Avenue / Eucalyptus Drive (LOS D to LOS E);
- 9. Junipero Serra Boulevard / John Daly Boulevard / SB Ramps (LOS D to LOS F);
- 17. 19<sup>th</sup> Avenue / Crespi Drive (LOS D to LOS E);
- 19. Sunset Boulevard / Taraval Street (LOS D to LOS F); and
- 25. Lake Merced Boulevard / Font Boulevard (LOS D to LOS F).

Under Tier 1 weekend midday peak hour conditions, the following two intersections would worsen to unacceptable conditions (from LOS D or better to LOS E or F,) when compared to Existing conditions:

- 15. 19<sup>th</sup> Avenue / Buckingham Way (LOS D to LOS E); and
- 27. Lake Merced Boulevard / Brotherhood Way (LOS C to LOS E).

Under Tier 2 weekend midday peak hour conditions, the following intersection would worsen to unacceptable conditions (from LOS D or better to LOS E or F) when compared to Tier 1 conditions:

- 14. 19<sup>th</sup> Avenue / Winston Drive (LOS D to LOS F).

The following seven study intersections would continue to operate at unacceptable conditions (LOS E or F) under both Tier 1 and Tier 2 conditions in the weekday AM peak hour:

- 3. Junipero Serra Boulevard / Sloat Boulevard / St. Francis Boulevard;
- 7. Junipero Serra Boulevard / 19<sup>th</sup> Avenue;
- 11. 19<sup>th</sup> Avenue / Sloat Boulevard;
- 15. 19<sup>th</sup> Avenue / Buckingham Way;
- 18. Chumasero Drive / Brotherhood Way;
- 23. Sunset Boulevard / Lake Merced Boulevard; and
- 26. Lake Merced Boulevard / Higuera Avenue.

During the weekday PM peak hour, the following 11 study intersections would continue to operate at unacceptable conditions (LOS E or F) under both Tier 1 and Tier 2 conditions:

- 3. Junipero Serra Boulevard / Sloat Boulevard / St. Francis Boulevard;
- 7. Junipero Serra Boulevard / 19<sup>th</sup> Avenue;
- 8. Junipero Serra Boulevard/John Daly Boulevard/Highway 1 NB Ramps;
- 11. 19<sup>th</sup> Avenue / Sloat Boulevard;
- 12. 19<sup>th</sup> Avenue / Ocean Avenue;
- 14. 19<sup>th</sup> Avenue / Winston Drive;
- 15. 19<sup>th</sup> Avenue / Buckingham Way;
- 16. 19<sup>th</sup> Avenue / Holloway Avenue;
- 18. Chumasero Drive/Brotherhood Way; and
- 26. Lake Merced Boulevard/Higuera Avenue.

During the weekend midday peak hour, the following three study intersections would continue to operate at unacceptable conditions (LOS E or F) under both Tier 1 and Tier 2 conditions:

- 3. Junipero Serra Boulevard / Sloat Boulevard / St. Francis Boulevard;
- 7. Junipero Serra Boulevard / 19<sup>th</sup> Avenue; and
- 11. 19<sup>th</sup> Avenue / Sloat Boulevard.



## TRANSIT ANALYSIS

### Transit Ridership and Capacity Analysis

The 2030 Baseline (Tier 1 and Tier 2) screenlines are summarized in **Table III.17** and **Table III.18**. Detailed screenline calculations are provided in **Appendix G**. The planned Parkmerced shuttle to and from the Daly City BART station was also included in the screenline analysis.

As shown in **Table III.17** and **Table III.18**, the background growth in transit riders associated with Tier 1 would increase overall transit utilization by 4 to 8 percent at the screenlines. In general, the growth in ridership would spread throughout all lines and would not be focused on one route or corridor. Overall, transit service at all screenlines would continue to operate below the SFMTA thresholds; however, the 29 Sunset is projected to operate at greater than 100 percent of capacity at all analysis periods except outbound during the weekday AM peak hour.

With the addition of the transit ridership generated by the foreseeable development projects in Tier 2, overall transit utilization would increase by an additional 8 to 13 percent at the screenlines. Each screenline would continue to operate below the capacity threshold, with the exception of the inbound Northeast screenline during the weekday PM peak hour, which would operate at about 109 percent of capacity. In addition, 3 individual lines would operate over capacity in the weekday AM peak hour and 6 would operate over capacity in the weekday PM peak hour.

In addition, as seen on the ridership projections for each line, the M Ocean View is anticipated to have an increase of about 650 passengers during the weekday AM peak hour and 900 passengers during the weekday PM peak hour. Based on the location of the foreseeable development projects, it is likely that most of these riders would use the SFSU station at 19<sup>th</sup> Avenue / Holloway Avenue. As noted previously, this station currently has overcrowded conditions during peak times. As such, this anticipated increase in activity at the station could substantially affect pedestrian conditions, worsening the current station and queuing area problems.

It should be noted that the proposed Parkmerced shuttle is projected to operate at or near capacity during the weekday peak hours. Since the shuttle would be privately operated, it would be able to increase or decrease vehicles to meet the service needs, thereby optimizing its capacity utilization.

Table III.17: Muni Screenline Summary – Tier 1 and Tier 2 (Weekday AM Peak Hour)

Screenline	Existing Conditions		Tier 1		Tier 2	
	Rid.	Cap.	Util.	Rid.	Cap.	Util.
<b>Outbound</b>						
18 46 <sup>th</sup> Avenue	108	216	50%	117	216	54%
28 19 <sup>th</sup> Avenue	292	378	77%	317	378	84%
N 28L 19 <sup>th</sup> Avenue Limited	110	216	51%	119	216	55%
29 Sunset	214	324	66%	232	324	72%
<i>Subtotal</i>	724	1,134	64%	786	1,134	69%
M Ocean View	1,038	1,414	73%	1,118	1,414	79%
<i>Subtotal</i>	1,038	1,414	73%	1,118	1,414	79%
M Ocean View	166	1,414	12%	208	1,414	15%
E 29 Sunset	233	324	72%	292	324	90%
<i>Subtotal</i>	399	1,738	23%	499	1,738	29%
28 19 <sup>th</sup> Avenue	76	378	20%	80	378	21%
S 28L 19 <sup>th</sup> Avenue Limited	20	270	7%	21	270	8%
<i>Subtotal</i>	96	648	15%	101	648	16%
88 Mission / BART Shuttle	253	378	67%	--	--	--
Parkmerced Shuttle	--	--	--	--	--	--
<b>TOTAL All Screenlines</b>	<b>2,510</b>	<b>5,312</b>	<b>47%</b>	<b>2,505</b>	<b>4,934</b>	<b>51%</b>
<b>Inbound</b>						
18 46 <sup>th</sup> Avenue	76	216	35%	85	216	39%
28 19 <sup>th</sup> Avenue	290	486	60%	323	486	67%
N 28L 19 <sup>th</sup> Avenue Limited	104	270	39%	116	270	43%
29 Sunset	195	216	90%	218	216	101%
<i>Subtotal</i>	665	1,188	56%	742	1,188	62%
M Ocean View	363	1,414	26%	472	1,414	33%
<i>Subtotal</i>	363	1,414	26%	472	1,414	33%
88 Mission / BART Shuttle	119	216	55%	119	216	55%
Parkmerced Shuttle	406	486	83%	406	486	83%
N 28L 19 <sup>th</sup> Avenue Limited	156	270	58%	156	270	58%
29 Sunset	264	216	122%	264	216	122%
<i>Subtotal</i>	945	1,188	80%	945	1,188	80%
M Ocean View	581	1,414	41%	581	1,414	41%
<i>Subtotal</i>	581	1,414	41%	581	1,414	41%
88 Mission / BART Shuttle	116	120	97%	116	120	97%
<b>TOTAL All Screenlines</b>	<b>3,172</b>	<b>5,054</b>	<b>63%</b>	<b>3,172</b>	<b>5,054</b>	<b>63%</b>

Table III.17 (continued)

Screenline	Existing Conditions			Tier 1			Tier 2		
	Rid.	Cap.	Util.	Rid.	Cap.	Util.	Rid.	Cap.	Util.
M Ocean View E 29 Sunset	229	1,414	16%	283	1,414	20%	312	1,414	22%
	321	324	99%	397	324	122%	425	324	131%
	550	1,738	32%	680	1,738	39%	737	1,738	42%
Subtotal									
28 19 <sup>th</sup> Avenue	271	378	72%	285	378	75%	326	378	86%
S 28L 19 <sup>th</sup> Avenue Limited	150	270	56%	158	270	58%	180	270	67%
	421	648	65%	442	648	68%	506	648	78%
Subtotal									
Parkmerced Shuttle	--	--	--	--	--	--	37	120	31%
TOTAL All Screenlines	1,999	4,988	40%	2,336	4,988	47%	2,807	5,108	55%

Notes: Rid= Ridership (number of riders); Cap= Capacity (number of riders; Util= Utilization (percent of capacity used))  
Shading indicates unacceptable conditions (at or exceedance of 100% capacity utilization).

Source: Muni, 2008; AECOM, 2009.



Table III.18: Muni Screenline Summary – Tier 1 and Tier 2 (Weekday PM Peak Hour)

Screenline	Existing Conditions			Tier 1		Tier 2			
	Rid.	Cap.	Util.	Rid.	Cap.	Rid.	Cap.	Util.	
Outbound									
N	18 46 <sup>th</sup> Avenue	97	216	45%	116	216	150	216	70%
	28 19 <sup>th</sup> Avenue	264	378	70%	315	378	410	378	109%
	28L 19 <sup>th</sup> Avenue Limited	150	324	46%	179	324	226	324	70%
	29 Sunset	187	216	87%	223	216	271	216	125%
	Subtotal	698	1,134	62%	833	1,134	1,057	1,134	93%
NE	M Ocean View	796	1,212	66%	958	1,212	1,145	1,212	94%
	Subtotal	796	1,212	66%	958	1,212	1,145	1,212	94%
E	M Ocean View	509	1,414	36%	564	1,414	595	1,414	42%
	29 Sunset	263	270	97%	291	270	325	270	120%
	Subtotal	772	1,684	46%	855	1,684	919	1,684	55%
S	28 19 <sup>th</sup> Avenue	184	324	57%	193	324	235	324	73%
	28L 19 <sup>th</sup> Avenue Limited	89	270	33%	93	270	112	270	42%
	Subtotal	273	594	46%	287	594	348	594	59%
Parkmerced Shuttle		--	--	--	--	--	115	180	64%
TOTAL All Screenlines		2,539	4,624	55%	2,932	4,624	3,584	4,804	75%
Inbound									
N	18 46 <sup>th</sup> Avenue	114	216	53%	120	216	153	216	71%
	28 19 <sup>th</sup> Avenue	290	432	67%	305	432	407	432	94%
	28L 19 <sup>th</sup> Avenue Limited	105	270	39%	110	270	159	270	59%
	29 Sunset	272	270	101%	286	270	331	270	123%
	Subtotal	781	1,188	66%	820	1,188	1,051	1,188	88%
NE	M Ocean View	1,194	1,414	84%	1,293	1,414	1,547	1,414	109%
	Subtotal	1,194	1,414	84%	1,293	1,414	1,547	1,414	109%

Table III.18 (continued)

Screenline	Existing Conditions			Tier 1			Tier 2		
	Rid.	Cap.	Util.	Rid.	Cap.	Util.	Rid.	Cap.	Util.
M Ocean View	242	1,212	20%	328	1,212	27%	359	1,212	30%
E 29 Sunset	284	378	75%	385	378	102%	418	378	111%
<i>Subtotal</i>	526	1,590	33%	714	1,590	45%	777	1,590	49%
28 19 <sup>th</sup> Avenue	131	378	35%	138	378	36%	180	378	48%
S 28L 19 <sup>th</sup> Avenue Limited	63	324	19%	66	324	20%	90	324	28%
<i>Subtotal</i>	194	702	28%	204	702	29%	270	702	38%
88 Mission / BART Shuttle	144	324	44%	--	--	--	--	--	--
Parkmerced Shuttle	--	--	--	--	--	--	178	180	99%
<b>TOTAL All Screenlines</b>	<b>2,839</b>	<b>5,218</b>	<b>54%</b>	<b>3,030</b>	<b>4,894</b>	<b>62%</b>	<b>3,823</b>	<b>5,074</b>	<b>75%</b>

Notes: Rid= Ridership (number of riders); Cap= Capacity (number of riders; Util= Utilization (percent of capacity used))  
 Shading indicates unacceptable conditions (at or exceedance of 100% capacity utilization).

Source: Muni, 2008; AECOM, 2009.

## Operations Analysis

In addition to the assessment of transit ridership and capacity conditions in the screenlines analysis, the effect of roadway congestion on the on-time performance of transit services within the study area was also evaluated. This assessment was conducted for the three main bus routes—28 19<sup>th</sup> Avenue, 28L 19<sup>th</sup> Avenue Limited and 29 Sunset—which are expected to see the most substantial increases in delay as a result of traffic congestion, as they all travel in mixed-flow lanes along 19<sup>th</sup> Avenue through the center of the study area. In addition, an evaluation of conditions for the M Ocean View light rail line was also conducted.

The following segments of each route were selected for analysis:

- 28 19<sup>th</sup> Avenue / 28L 19<sup>th</sup> Avenue Limited: between Junipero Serra Boulevard / Font Boulevard and 19<sup>th</sup> Avenue / Sloat Boulevard;
- 29 Sunset: between 19<sup>th</sup> Avenue / Crespi (or 19<sup>th</sup> Avenue / Holloway Avenue) and 19<sup>th</sup> Avenue / Winston Drive; and
- M Ocean View: between Rossmoor Drive and Junipero Serra Avenue.

Other bus routes, such as the 17 Parkmerced and 18 46<sup>th</sup> Avenue, are not expected to be substantially affected by future congestion levels on 19<sup>th</sup> Avenue (the 17 Parkmerced would be rerouted off 19<sup>th</sup> Avenue under the TEP and the 18 46<sup>th</sup> Avenue does not travel on 19<sup>th</sup> Avenue).

For the four selected lines, the average delays for each movement along the route (as calculated from the intersection LOS analysis) were summed to obtain the total route delay for each route, which was then compared across scenarios to determine the effect of increased traffic levels and the various proposed geometric changes on transit delay. For instance, to determine the route delay for the 29 Sunset bus line in the northbound direction within the analysis segment, the average vehicular delays at the westbound right-turn movement at 19<sup>th</sup> Avenue / Holloway Avenue and the northbound left-turn movement at 19<sup>th</sup> Avenue / Winston Drive were added.

Tier 1 and Tier 2 increases in transit travel time due to roadway congestion are summarized in **Table III.19**. These represented the projected increase in run times at the study intersections, as compared to Existing Conditions. Detailed travel time calculations and assumptions are provided in **Appendix H**.

As shown in **Table III.19**, transit travel time would increase by up to 5 minutes as a result of increased intersection delay due to the background growth included in Tier 1. Generally, the additional traffic congestion due to the foreseeable development projects in Tier 2 would result in 1- to 2-minute increases over the Tier 1 background growth.



**Table III.19: Muni Travel Time Increases – Tier 1 and Tier 2**

Route	Peak Hour	Transit Travel Time Increases (m:ss)	
		Tier 1	Tier 2
28 19 <sup>th</sup> Avenue/ 28L 19 <sup>th</sup> Avenue Limited			
NB	AM	2:20	3:00
	PM	5:10	7:00
SB	AM	3:50	3:50
	PM	5:00	6:40
29 Sunset			
NB	AM	0:00	0:10
	PM	0:00	1:50
SB	AM	0:50	-0:20
	PM	3:10	2:20
M Ocean View			
NB	AM	0:20	0:50
	PM	0:30	2:20
SB	AM	0:40	0:40
	PM	0:20	1:20

*Notes:*

All increases relative to existing travel time.

m:ss = minutes and seconds.

*Source:* AECOM, 2009.

Buses on the 28 19<sup>th</sup> Avenue and 28L 19<sup>th</sup> Avenue Limited lines would see relatively large increases in transit travel time due to anticipated roadway congestion at the intersections of 19<sup>th</sup> Avenue / Sloat Boulevard, 19<sup>th</sup> Avenue / Holloway Avenue, 19<sup>th</sup> Avenue / Crespi Drive, and Junipero Serra Boulevard / 19<sup>th</sup> Avenue. Congestion on 19<sup>th</sup> Avenue and the resulting increase in travel times could result in effects to the performance of these bus lines, particularly in terms of service reliability and schedule adherence.

Buses on the 29 Sunset route would see increases in travel time in the northbound direction due to roadway congestion at the intersections of 19<sup>th</sup> Avenue / Holloway Avenue and 19<sup>th</sup> Avenue / Winston Drive. In the southbound direction, the 29 Sunset currently travels south through the 19<sup>th</sup> Avenue / Holloway Avenue intersection, turns right onto Crespi Drive, travels around a traffic circle, turns left back onto northbound 19<sup>th</sup> Avenue, and then turns right onto Holloway Avenue. With the elimination of the Crespi Drive loop as part of the Parkmerced Project, the 29 Sunset would be rerouted. While the new route has not yet been finalized, it was assumed that southbound buses would instead turn right at Holloway Avenue, turn left on Cardenas Avenue, turn right to eastbound Holloway Avenue from Varela Avenue, and then pass eastbound through the 19<sup>th</sup> Avenue / Holloway Avenue intersection. Overall, however, this reroute is not expected to substantially change bus travel times. Although the proposed rerouting is slightly longer in distance, congestion at the key intersection movements (southbound right turn and westbound through at 19<sup>th</sup> Avenue / Holloway Avenue) would be less than at the key intersection movements with the current route (southbound through and northbound right turn at 19<sup>th</sup> Avenue / Holloway

Avenue, and eastbound left turn at 19<sup>th</sup> Avenue / Crespi Drive), thereby resulting in no increases to travel times.

Light rail vehicles on the M Ocean View would see increases in travel time in both directions under both Tier 1 and Tier 2 conditions. The foreseeable development projects would have only marginal effects on travel time in the southbound direction but would have more pronounced effects on travel time in the northbound direction, primarily as a result of delays associated with the train interaction with the northbound left-turn movement at 19<sup>th</sup> Avenue / Winston Drive and the crossing of 19<sup>th</sup> Avenue at Rossmoor Drive.

In general, transit service is affected by traffic controls, traffic congestion, and other operational characteristics (such as track design, location of switches and crossovers, and others), all of which can lead to delays in service. Some of these delays are relatively predictable, such as the need for a train to stop and the train operator to visually inspect a switch to ensure proper alignment. Other delays are unpredictable, such as increased travel time due to traffic congestion or signal delay (which can vary depending on when a transit vehicle arrives in the signal cycle). Whether delays are predictable or unpredictable, they result in longer transit travel times, expanding the uncertainty of travel times and introducing additional variability and reducing service reliability. In addition, longer travel times also increase the operating costs of a route, thereby reducing the quality of service for customers.

## PARKING ANALYSIS

The projected growth in the region as part of Tier 1, in addition to the eight foreseeable development projects included in Tier 2, would result in new parking demands for study area uses.

At this point, the parking supply of the smaller development projects, such as 445 Wawona Street (the Arden Wood site), 77-111 Cambon Drive, 800 Brotherhood Way, and 700 Font Boulevard, is unknown. However, it is likely that they would provide off-street parking to meet their requirements per the San Francisco *Planning Code* (such as one space for each residential unit). However, they would still result in minor parking shortfalls and cars would consequently have to park in the surrounding neighborhoods. Since on-street parking is generally available throughout the study area, overall parking conditions would not noticeably worsen.

However, there would be the potential for a substantial parking shortfall in the vicinity of the proposed Stonestown, SFSU, and Parkmerced projects, as follows:

- The current Stonestown shopping center provides significant off-street parking facilities that can accommodate employee and visitor parking demand on most days; however, during the peak holiday seasons, parking can be at or near capacity conditions. The proposed development plan, in addition to increasing the amount of retail and restaurant space, may affect the overall parking ratio. As part of any future environmental review

for this project, a detailed parking supply and occupancy analysis would be conducted for normal and peak days, and means to accommodate any unmet parking demand would be established.

- At SFSU, improvements to the campus in accordance with the Campus Master Plan will result in additional parking demand. The campus currently contains about 3,200 parking spaces and experiences occupancy levels of 90 percent for student parking lots and 70 percent for staff parking lots. It should be noted, however, that intercept surveying conducted as part of the Campus Master Plan determined that only 26 percent of respondents parked on campus. Thus, although there appears to be capacity remaining in campus parking lots, it is likely that additional parking demand would spill into the nearby neighborhoods, where available parking is already nearly fully occupied during the day.
- The proposed Parkmerced Project is anticipated to continue to provide one parking space for each residential unit, plus limited parking for the planned commercial space. To help address the likely parking shortfall (as the San Francisco Planning Department estimates that residential units have a parking demand for between 1.1 and 1.5 spaces per unit), the project is proposing to implement a parking management program. As part of the ongoing environmental review process, a detailed parking supply, demand and code requirement analysis will be conducted, and strategies to minimize the effect of unmet parking demand will be developed. However, any demand that cannot be met on site would likely spill over to the residential neighborhood on the east side of 19<sup>th</sup> Avenue, which also accommodates parking from SFSU students. Combined, this area would likely encounter overflow parking conditions during peak times and overnight.

#### **PEDESTRIAN AND BICYCLE ANALYSIS**

With the addition of the background growth in Tier 1 and the eight foreseeable development projects in Tier 2, bicycle and pedestrian activity would increase throughout the study area. The majority of this increase would likely occur along 19<sup>th</sup> Avenue, with people walking to Parkmerced, SFSU, and Stonestown, or would occur within the project sites. At other locations through the study area, such as near the proposed Arden Wood site, increases in pedestrian and bicycle activity would be relatively minor due to the size and type of the future developments.

As discussed in Section III.B, there are adequate pedestrian facilities throughout the study area, including sidewalks on all streets, sidewalks at most intersections, and pedestrian signals at signalized intersections. In general, these facilities would be sufficient to accommodate the additional pedestrian activity that would occur in the future.

However, there would likely be issues at the primarily pedestrian access points to the Stonestown, SFSU, and Parkmerced sites, based on the amount of pedestrian activity they are anticipated to generate. (This pedestrian activity would include people walking as their primary mode, plus people walking to and from transit and their parked vehicles.)

Currently, pedestrian conditions at the 19<sup>th</sup> Avenue / Winston Drive and 19<sup>th</sup> Avenue / Holloway Avenue intersections are restricted, due to the heavy volume of passengers boarding and alighting



the M Ocean View light rail stations at these two locations. For instance, at the entrance to the SFSU Station at the north side of the 19<sup>th</sup> Avenue / Holloway Avenue intersection, passengers exiting the train typically overflow the waiting area and spill into the adjacent train right-of-way. Pedestrians and new transit riders generated by these three foreseeable development projects would likely overload these pedestrian facilities during peak activity times, exacerbating these conditions. As a result, detailed evaluations of pedestrian crosswalk level of service conditions and pedestrian wait area level of service conditions should be conducted at these two intersections to identify potential impacts due to these projects and to identify appropriate mitigation measures.

Also as discussed in Section III.B, there is relatively low bicycle ridership throughout the study area, primarily concentrated on streets that have existing bicycle facilities and near major destinations (such as the Ocean Avenue commercial area near Junipero Serra Boulevard). As such, it is anticipated that any increase in bicycle activity generated by the background growth and the Tier 2 foreseeable development projects could be accommodated without substantially affecting bicycle conditions.

In addition, it should be noted that there are currently limited pedestrian connections to the Parkmerced neighborhood: at 19<sup>th</sup> Avenue / Holloway Avenue on the east side, at Lake Merced Boulevard / Higuera Avenue on the west side, and via a pedestrian overcrossing at Brotherhood Way / Chumasero Drive on the south side (although multiple connections are available on the north side at Holloway Avenue). Since the Parkmerced Project would include about 300,000 square feet of neighborhood-serving retail and office space, there would be an increased demand for pedestrian and bicycle access into the Parkmerced neighborhood. The lack of connections to the Parkmerced neighborhood would therefore focus all pedestrians and bicyclists to a few locations, likely resulting in worsening of conditions or minimizing the attractiveness of the new land use program.

## E. FUTURE PLUS PROJECTS CONDITIONS (TIER 3 AND TIER 4)

This chapter summarizes the results of intersection, pedestrian, bicycle, and transit analysis under the future plus projects conditions. For this evaluation, the projects consist of those proposed by public agencies (Tier 3) and those proposed as part of the private development projects (Tier 4A, Tier 4B, and Tier 4C).

### INTERSECTION ANALYSIS

#### Future Baseline plus Public Improvements (Tier 3)

Future Baseline plus Public Improvements Conditions (Tier 3) would be similar to those developed under the Future Baseline Conditions, with the exception of signal modifications along 19<sup>th</sup> Avenue and implementation of the traffic calming proposals and new bicycle lanes. A comparison of intersection LOS under Future Baseline (Tier 1 and Tier 2), and Future Baseline plus Public Improvements (Tier 3) conditions is summarized in **Table III.20** and **Table III.21**. Detailed LOS calculations and figures are provided in **Appendix D**. Overall, the intersection LOS and delay conditions under Tier 3 would be the same as with Tier 2, as the proposed Tier 3 transportation projects would not affect the configuration and geometry of the study intersections.

As presented in **Table III.20** and **Table III.21**, under Tier 3 weekday AM, weekday PM, and weekend peak hour conditions, no study intersections would improve from unacceptable LOS (LOS E or F) to acceptable LOS (LOS D or better) from Tier 1.

Under Tier 3 weekday AM peak hour conditions, the following intersections would worsen to unacceptable conditions (from LOS D or better to LOS E or F) when compared to Tier 1 conditions:

- 14. 19<sup>th</sup> Avenue / Winston Drive; and
- 24. Lake Merced Boulevard / Winston Drive.

Under Tier 3 weekday PM peak hour conditions, the following intersections would worsen to unacceptable conditions (from LOS D or better to LOS E or F) when compared to Tier 1 conditions:

- 4. Junipero Serra Boulevard / Ocean Avenue / Eucalyptus Drive;
- 9. Junipero Serra Boulevard / John Daly Boulevard / SB Ramps;
- 17. 19<sup>th</sup> Avenue/Crespi Street;
- 19. Sunset Boulevard / Taraval Street; and
- 25. Lake Merced Boulevard / Font Boulevard.

**Table III.20: Intersection Level of Service – Tier 3 (Weekday Peak Hours)**

Intersection		Peak Hour	Tier 1		Tier 2		Tier 3	
			LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>
1	Claremont Blvd./ Dewey Blvd./ Taraval St. <sup>2</sup>	AM	A	6.9	A	7.0	A	7.0
		PM	A	7.2	A	7.4	A	7.4
2	Santa Clara Ave./ Vicente St./ Portola Dr.	AM	C	30.5	D	40.2	D	40.2
		PM	C	31.2	D	39.0	D	39.0
3	Junipero Serra Blvd./ Sloat Blvd./ St. Francis Blvd.	AM	F	>80 / 1.09	F	>80 / 1.09	F	>80 / 1.09
		PM	F	>80 / 1.13	F	>80 / 1.17	F	>80 / 1.17
4	Junipero Serra Blvd. / Ocean Ave. / Eucalyptus Dr.	AM	D	41.7	D	46.9	D	46.9
		PM	D	41.0	E	70.2	E	70.2
5	Junipero Serra Blvd. / Winston Dr.	AM	D	35.7	D	38.3	D	38.3
		PM	C	30.8	D	49.3	D	49.3
6	Junipero Serra Blvd. / Holloway Ave.	AM	C	33.2	D	36.9	D	36.9
		PM	C	30.7	D	37.4	D	37.4
7	Junipero Serra Blvd. / 19 <sup>th</sup> Ave.	AM	F	>80 / 0.95	F	>80 / 0.97	F	>80 / 0.97
		PM	F	>80 / 1.25	F	>80 / 1.30	F	>80 / 1.30
8	Junipero Serra Blvd. / John Daly Blvd. / NB Ramps	AM	D	40.4	D	40.5	D	40.5
		PM	F	>80 / 1.31	F	>80 / 1.40	F	>80 / 1.40
9	Junipero Serra Blvd. / John Daly Blvd. / SB Ramps	AM	C	20.5	C	20.4	D	20.4
		PM	D	52.5	F	>80 / 1.17	F	>80 / 1.17
10	19 <sup>th</sup> Ave. / Taraval St.	AM	C	26.9	C	28.9	C	28.9
		PM	B	20.0	C	24.0	C	24.0
11	19 <sup>th</sup> Ave. / Sloat Blvd.	AM	F	>80 / 1.48	F	>80 / 1.51	F	>80 / 1.51
		PM	F	>80 / 1.56	F	>80 / 1.63	F	>80 / 1.63
12	19 <sup>th</sup> Ave. / Ocean Ave.	AM	D	46.9	D	46.1	D	46.1
		PM	F	>80 / 1.58	F	>80 / 1.63	F	>80 / 1.63
13	19 <sup>th</sup> Ave. / Eucalyptus Dr.	AM	C	22.7	C	23.1	C	23.1
		PM	E	72.7	F	>80 / 1.18	F	>80 / 1.18
14	19 <sup>th</sup> Ave. / Winston Dr.	AM	D	52.9	F	>80 / 1.32	F	>80 / 1.32
		PM	F	>80 / 1.34	F	>80 / 1.70	F	>80 / 1.70
15	19 <sup>th</sup> Ave. / Buckingham Wy. <sup>3</sup>	AM	F	>50 / 0.70	F	>50 / 0.83	F	>50 / 0.83
		PM	F	>50 / 1.81	F	>50 / 2.20	F	>50 / 2.20
16	19 <sup>th</sup> Ave. / Holloway Ave.	AM	E	65.9	E	59.7	E	59.7
		PM	F	>80 / 0.88	F	>80 / 1.03	F	>80 / 1.03
17	19 <sup>th</sup> Ave. / Crespi Dr.	AM	E	58.1	E	64.8	E	64.7
		PM	D	53.7	E	69.9	E	69.9
18	Chumasero Dr. / Brotherhood Wy.	AM	F	>80 / 0.97	F	>80 / 1.48	F	>80 / 1.48
		PM	F	>80 / 1.12	F	>80 / 1.74	F	>80 / 1.74
19	Sunset Blvd. / Taraval St.	AM	C	21.8	D	43.0	D	43.0
		PM	D	53.1	F	>80 / 0.96	F	>80 / 0.96



Table III.20 (continued)

	Intersection	Peak Hour	Tier 1		Tier 2		Tier 3	
			LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>
20	Sunset Blvd. / Ocean Ave.	AM	B	12.1	B	13.7	B	13.7
		PM	B	13.5	C	30.5	C	30.5
21	Skyline Blvd. / Sloat Blvd. / 39 <sup>th</sup> Ave. <sup>4</sup>	AM	C	17.2	C	17.5	C	17.5
		PM	D	27.9	D	29.4	D	29.4
22	Skyline Blvd. / Lk. Merced Blvd. (North) <sup>3</sup>	AM	C	15.2	C	15.1	C	15.1
		PM	C	17.7	C	17.5	C	17.5
	Skyline Blvd. / Lk. Merced Blvd. (South) <sup>3,5</sup>	AM	F	>50 / 0.39	F	>50 / 0.38	F	>50 / 0.38
		PM	F	>50 / 0.92	F	>50 / 0.90	F	>50 / 0.90
23	Sunset Blvd. / Lake Merced Blvd. <sup>3</sup>	AM	<b>F</b>	<b>&gt;50 / 0.63</b>	<b>F</b>	<b>&gt;50 / 1.10</b>	<b>F</b>	<b>&gt;50 / 1.10</b>
		PM	<b>F</b>	<b>&gt;50 / 1.37</b>	<b>F</b>	<b>&gt;50 / 2.49</b>	<b>F</b>	<b>&gt;50 / 2.49</b>
24	Lake Merced Blvd. / Winston Dr.	AM	C	29.2	<b>F</b>	<b>&gt;80 / 0.81</b>	<b>F</b>	<b>&gt;80 / 0.81</b>
		PM	<b>F</b>	<b>&gt;80 / 0.98</b>	<b>F</b>	<b>&gt;80 / 1.37</b>	<b>F</b>	<b>&gt;80 / 1.37</b>
25	Lake Merced Blvd. / Font Blvd.	AM	E	64.6	<b>F</b>	<b>&gt;80 / 1.47</b>	<b>F</b>	<b>&gt;80 / 1.47</b>
		PM	D	49.7	<b>F</b>	<b>&gt;80 / 1.64</b>	<b>F</b>	<b>&gt;80 / 1.64</b>
26	Lake Merced Blvd. / Higuera Ave.	AM	<b>F</b>	<b>&gt;80 / 0.79</b>	<b>F</b>	<b>&gt;80 / 1.20</b>	<b>F</b>	<b>&gt;80 / 1.20</b>
		PM	<b>F</b>	<b>&gt;80 / 0.85</b>	<b>F</b>	<b>&gt;80 / 1.57</b>	<b>F</b>	<b>&gt;80 / 1.57</b>
27	Lake Merced Blvd. / Brotherhood Wy.	AM	<b>F</b>	<b>&gt;80 / 2.12</b>	<b>F</b>	<b>&gt;80 / 2.45</b>	<b>F</b>	<b>&gt;80 / 2.25</b>
		PM	<b>F</b>	<b>&gt;80 / 2.46</b>	<b>F</b>	<b>&gt;80 / 2.86</b>	<b>F</b>	<b>&gt;80 / 2.86</b>

*Notes:*

**Bold** indicates intersection operating at unacceptable level of service (LOS).

<sup>1</sup> Delay presented in seconds per vehicle. For intersections that operate at LOS F, the delay per vehicle and volume-to-capacity (V/C) ratio are presented.

<sup>2</sup> Although intersection is designed as a roundabout, all approaches are controlled by stop signs; as such, it was analyzed as an all-way stop-controlled intersection.

<sup>3</sup> OWSC (one-way stop-controlled) intersection.

<sup>4</sup> AWSC (all-way stop-controlled) intersection.

<sup>5</sup> Though the intersection would operate at an unacceptable LOS, the conditions of the Manual on Uniform Traffic Control Devices (MUTCD) peak hour volume signal warrant would not be met.

Source: AECOM, 2009.

**Table III.21: Intersection Level of Service – Tier 3 (Weekend Peak Hour)**

Intersection		Tier 1		Tier 2		Tier 3	
		LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>
3	Junipero Serra Blvd./ Sloat Blvd./ St. Francis Blvd.	F	>80 / 1.11	F	>80 / 1.18	F	>80 / 1.18
7	Junipero Serra Blvd. / 19 <sup>th</sup> Ave.	F	>80 / 1.78	F	>80 / 1.86	F	>80 / 1.86
11	19 <sup>th</sup> Ave. / Sloat Blvd.	F	>80 / 1.51	F	>80 / 1.58	F	>80 / 1.58
14	19 <sup>th</sup> Ave. / Winston Dr.	D	40.4	F	>80 / 1.71	F	>80 / 1.71
15	19 <sup>th</sup> Ave. / Buckingham Wy. <sup>2</sup>	E	49.2	F	>50 / 0.95	F	>50 / 0.95
16	19 <sup>th</sup> Ave. / Holloway Ave.	C	25.7	D	41.8	D	41.8
27	Lake Merced Blvd. / Brotherhood Wy.	E	59.2	F	>80 / 2.44	F	>80 / 2.44

*Notes:*

**Bold** indicates intersection operating at unacceptable level of service (LOS).

<sup>1</sup> Delay presented in seconds per vehicle. For intersections that operate at LOS F, the delay per vehicle and volume-to-capacity (V/C) ratio are presented.

<sup>2</sup> OWSC (one-way stop-controlled) intersection.

*Source:* AECOM, 2009.

Under Tier 3 weekend peak hour conditions, the following intersections would worsen to unacceptable conditions (from LOS D or better to LOS E or F, or from LOS E to LOS F) when compared to Tier 1 conditions:

14. 19<sup>th</sup> Avenue / Winston Drive.

As presented in **Table III.20** and **Table III.21**, under Tier 3 weekday AM, weekday PM, and weekend peak hour conditions, no study intersections would improve from unacceptable LOS (LOS E or F) to acceptable LOS (LOS D or better) from Tier 2. Similarly, under Tier 3 weekday AM, weekday PM, and weekend peak hour conditions, no study intersections would worsen to unacceptable conditions (from LOS D or better to LOS E or F) when compared to Tier 2 conditions. The addition of the Tier 3 public projects to the Tier 2 conditions would not affect the analysis of the study intersections, and all intersections would operate with the same LOS and average delay per vehicle.

#### **Future Baseline plus Public and Private Improvements (Tier 4A)**

Tier 4A conditions include all the assumptions in Tier 3 with the addition of the following project-related features (see pages III.43 through III.48):

- Pedestrian improvements to 19<sup>th</sup> Avenue / Holloway Avenue, 19<sup>th</sup> Avenue / Crespi Drive, and Junipero Serra Boulevard / 19<sup>th</sup> Avenue intersections;
- Increased capacity to Junipero Serra Boulevard / 19<sup>th</sup> Avenue intersection (third northbound Junipero Serra left-turn lane added and northbound 19<sup>th</sup> Avenue left-turn movement eliminated);
- New northbound left turn from Junipero Serra Boulevard to Chumasero Drive;
- Revised Chumasero Drive / Brotherhood Way intersection;
- Reconfigured Lake Merced Boulevard / Brotherhood Way intersection; and
- Three new access points on Lake Merced Boulevard (Vidal Drive, Acevedo Avenue, and Gonzalez Drive).

A comparison of Tier 1, Tier 2, and Tier 4A conditions is presented in **Table III.22** and **Table III.23**. Detailed LOS calculations and figures are provided in **Appendix D**.

As shown in **Tables III.22** and **Table III.23**, under Tier 4A weekday AM peak hour conditions, the following two intersections would improve to acceptable conditions (from LOS E or F to LOS D or better) when compared to Tier 1 conditions:

18. Chumasero Drive / Brotherhood Way: Conversion of this intersection into a split-T intersection with Brotherhood Way / Thomas More Way would improve operating conditions from LOS F to LOS B, as conflicting traffic movements would be reduced and the protected westbound left turn would be eliminated.
26. Lake Merced Boulevard / Higuera Avenue: The LOS would improve at this location from LOS F to LOS D as a direct result of the provision of three new access points along Lake Merced Boulevard, thus distributing traffic volumes between four intersections instead of one.

Under Tier 4A weekday AM peak hour conditions, the following two intersections would worsen to unacceptable conditions (from LOS D or better to LOS E or F) when compared to Tier 1 conditions:

14. 19<sup>th</sup> Avenue / Winston Drive: The LOS would worsen from LOS D to LOS F at this location due to the increase in traffic volumes from the foreseeable development projects included in Tier 2.
24. Lake Merced Boulevard / Winston Drive: The LOS would worsen from LOS C to LOS F at this location due to the increase in traffic volumes from the foreseeable development projects included in Tier 2.



Table III.22: Intersection Level of Service – Tier 4A (Weekday Peak Hours)

	Intersection	Peak Hour	Tier 1		Tier 2		Tier 4A	
			LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>
1	Claremont Blvd./ Dewey Blvd./ Taraval St. <sup>2</sup>	AM	A	6.9	A	7.0	A	7.0
		PM	A	7.2	A	7.4	A	7.4
2	Santa Clara Ave./ Vicente St./ Portola Dr.	AM	C	30.5	D	40.2	D	40.2
		PM	C	31.2	D	39.0	D	39.0
3	Junipero Serra Blvd./ Sloat Blvd./ St. Francis Blvd.	AM	F	>80 / 1.09	F	>80 / 1.09	F	>80 / 1.09
		PM	F	>80 / 1.13	F	>80 / 1.17	F	>80 / 1.17
4	Junipero Serra Blvd. / Ocean Ave. / Eucalyptus Dr.	AM	D	41.7	D	46.9	D	46.9
		PM	D	41.0	E	70.2	E	70.2
5	Junipero Serra Blvd. / Winston Dr.	AM	D	35.7	D	38.3	D	38.3
		PM	C	30.8	D	49.3	D	49.3
6	Junipero Serra Blvd. / Holloway Ave.	AM	C	33.2	D	36.9	D	36.9
		PM	C	30.7	D	37.4	D	37.4
7	Junipero Serra Blvd. / 19 <sup>th</sup> Ave.	AM	F	>80 / 0.95	F	>80 / 0.97	E	68.6
		PM	F	>80 / 1.25	F	>80 / 1.30	F	>80 / 1.08
7a	Junipero Serra Blvd / Chumasero Dr.	AM	----	----	----	----	B	19.4
		PM	----	----	----	----	C	32.0
8	Junipero Serra Blvd. / John Daly Blvd. / NB Ramps	AM	D	40.4	D	40.5	D	40.5
		PM	F	>80 / 1.31	F	>80 / 1.40	F	>80 / 1.40
9	Junipero Serra Blvd. / John Daly Blvd. / SB Ramps	AM	C	20.5	C	20.4	C	20.4
		PM	D	52.5	F	>80 / 1.17	F	>80 / 1.17
10	19 <sup>th</sup> Ave. / Taraval St.	AM	C	26.9	C	28.9	C	28.9
		PM	B	20.0	C	24.0	C	24.0
11	19 <sup>th</sup> Ave. / Sloat Blvd.	AM	F	>80 / 1.48	F	>80 / 1.51	F	>80 / 1.51
		PM	F	>80 / 1.56	F	>80 / 1.63	F	>80 / 1.63
12	19 <sup>th</sup> Ave. / Ocean Ave.	AM	D	46.9	D	46.1	D	46.1
		PM	F	>80 / 1.58	F	>80 / 1.63	F	>80 / 1.63
13	19 <sup>th</sup> Ave. / Eucalyptus Dr.	AM	C	22.7	C	23.1	C	23.1
		PM	E	72.7	F	>80 / 1.18	F	>80 / 1.18
14	19 <sup>th</sup> Ave. / Winston Dr.	AM	D	52.9	F	>80 / 1.32	F	>80 / 1.32
		PM	F	>80 / 1.34	F	>80 / 1.70	F	>80 / 1.70
15	19 <sup>th</sup> Ave. / Buckingham Wy. <sup>3</sup>	AM	F	>50 / 0.70	F	>50 / 0.83	F	>50 / 0.83
		PM	F	>50 / 1.81	F	>50 / 2.20	F	>50 / 2.20
16	19 <sup>th</sup> Ave. / Holloway Ave.	AM	E	65.9	E	59.7	E	59.7
		PM	F	>80 / 0.88	F	>80 / 1.03	F	>80 / 1.03
17	19 <sup>th</sup> Ave. / Crespi Dr.	AM	E	58.1	E	64.8	E	75.7
		PM	D	53.7	E	69.9	E	74.7
18	Chumasero Dr. / Brotherhood Wy.	AM	F	>80 / 0.97	F	>80 / 1.48	B	19.7
		PM	F	>80 / 1.12	F	>80 / 1.74	F	>80 / 0.93
18a	Thomas More Wy. / Brotherhood Wy.	AM	----	----	----	----	C	23.0
		PM	----	----	----	----	C	21.9

Table III.22 (continued)

	Intersection	Peak Hour	Tier 1		Tier 2		Tier 4A	
			LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>
19	Sunset Blvd. / Taraval St.	AM PM	C D	21.8 53.1	D F	43.0 >80 / 0.96	D F	43.0 >80 / 0.96
20	Sunset Blvd. / Ocean Ave.	AM PM	B B	12.1 13.5	B C	13.7 30.5	B C	13.7 30.5
21	Skyline Blvd. / Sloat Blvd. / 39 <sup>th</sup> Ave. <sup>4</sup>	AM PM	C D	17.2 27.9	C D	17.5 29.4	C D	17.5 29.4
22	Skyline Blvd. / Lk. Merced Blvd. (North) <sup>3</sup>	AM PM	C C	15.2 17.7	C C	15.1 17.5	C C	15.1 17.5
	Skyline Blvd. / Lk. Merced Blvd. (South) <sup>3,5</sup>	AM PM	F F	>50 / 0.39 >50 / 0.92	F F	>50 / 0.38 >50 / 0.90	F F	>50 / 0.38 >50 / 0.90
23	Sunset Blvd. / Lake Merced Blvd. <sup>3</sup>	AM PM	F F	>50 / 0.63 >50 / 1.37	F F	>50 / 1.10 >50 / 2.49	F F	>50 / 1.10 >50 / 2.49
24	Lake Merced Blvd. / Winston Dr.	AM PM	C F	29.2 >80 / 0.98	F F	>80 / 0.81 >80 / 1.37	F F	>80 / 0.81 >80 / 1.37
25	Lake Merced Blvd. / Font Blvd.	AM PM	E D	64.6 49.7	F F	>80 / 1.47 >80 / 1.64	F F	>80 / 1.40 >80 / 1.55
26a	Lake Merced Blvd. / Vidal Dr	AM PM	---- ----	---- ----	---- ----	---- ----	D D	45.2 36.0
26b	Lake Merced Blvd / Acevedo Ave.	AM PM	---- ----	---- ----	---- ----	---- ----	D C	43.3 34.6
26	Lake Merced Blvd./ Higuera Ave	AM PM	F F	>80 / 0.79 >80 / 0.85	F F	>80 / 1.20 >80 / 1.57	D D	37.9 45.4
26c	Lake Merced Blvd./ Gonzalez Dr.	AM PM	---- ----	---- ----	---- ----	---- ----	D D	47.1 52.4
27	Lake Merced Blvd. / Brotherhood Wy.	AM PM	F F	>80 / 2.12 >80 / 2.46	F F	>80 / 2.45 >80 / 2.86	F F	>80 / 1.78 >80 / 2.20

*Notes:*

**Bold** indicates intersection operating at unacceptable level of service (LOS). Shaded rows indicate a change in LOS, delay, or volume-to-capacity (V/C) ratio from Tier 2 to Tier 4A.

<sup>1</sup> Delay presented in seconds per vehicle. For intersections that operate at LOS F, the delay per vehicle and V/C ratio are presented.

<sup>2</sup> Although intersection is designed as a roundabout, all approaches are controlled by stop signs; as such, it was analyzed as an all-way stop-controlled intersection.

<sup>3</sup> OWSC (one-way stop-controlled) intersection.

<sup>4</sup> AWSC (all-way stop-controlled) intersection.

<sup>5</sup> Though the intersection would operate at an unacceptable LOS, the conditions of the MUTCD peak hour volume signal warrant would not be met.

Source: AECOM, 2009.

**Table III.23: Intersection Level of Service – Tier 4A (Weekend Peak Hour)**

	Intersection	Tier 1		Tier 2		Tier 4A	
		LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>
3	Junipero Serra Blvd./ Sloat Blvd./ St. Francis Blvd.	<b>F</b>	<b>&gt;80 / 1.11</b>	<b>F</b>	<b>&gt;80 / 1.18</b>	<b>F</b>	<b>&gt;80 / 1.18</b>
7	Junipero Serra Blvd. / 19th Ave.	<b>F</b>	<b>&gt;80 / 1.78</b>	<b>F</b>	<b>&gt;80 / 1.86</b>	<b>F</b>	<b>&gt;80 / 1.86</b>
11	19 <sup>th</sup> Ave. / Sloat Blvd.	<b>F</b>	<b>&gt;80 / 1.51</b>	<b>F</b>	<b>&gt;80 / 1.58</b>	<b>F</b>	<b>&gt;80 / 1.58</b>
14	19 <sup>th</sup> Ave. / Winston Dr.	D	40.4	<b>F</b>	<b>&gt;80 / 1.71</b>	<b>F</b>	<b>&gt;80 / 1.71</b>
15	19 <sup>th</sup> Ave. / Buckingham Wy. <sup>2</sup>	<b>E</b>	<b>49.2</b>	<b>F</b>	<b>&gt;50 / 0.95</b>	<b>F</b>	<b>&gt;50 / 0.95</b>
16	19 <sup>th</sup> Ave. / Holloway Ave.	C	25.7	D	41.8	D	40.2
27	Lake Merced Blvd. / Brotherhood Wy.	<b>E</b>	<b>59.2</b>	<b>F</b>	<b>&gt;80 / 2.44</b>	<b>F</b>	<b>&gt;80 / 1.91</b>

Notes:

**Bold** indicates intersection operating at unacceptable level of service (LOS). Shaded rows indicate a change in LOS, delay, or volume-to-capacity (V/C) ratio from Tier 2 to Tier 4A.

<sup>1</sup> Delay presented in seconds per vehicle. For intersections that operate at LOS F, the delay per vehicle and V/C ratio are presented.

<sup>2</sup> OWSC (one-way stop-controlled) intersection.

Source: AECOM, 2009.

Under Tier 4A weekday PM peak hour conditions, the following intersection would improve to acceptable conditions (from LOS E or F to LOS D or better) when compared to Tier 1 conditions:

26. Lake Merced Boulevard / Higuera Avenue: The LOS would improve at this location from LOS F to LOS D as a direct result of the provision of three new access points along Lake Merced Boulevard, thus distributing traffic volumes among four intersections instead of one.

During Tier 4A weekday PM peak hour conditions, the following five intersections would worsen to unacceptable conditions (from LOS D or better to LOS E or F) when compared to Tier 1 conditions:

4. Junipero Serra Boulevard / Ocean Avenue / Eucalyptus Drive: The LOS would worsen from LOS D to LOS E at this location due to the increase in traffic volumes from the foreseeable development projects included in Tier 2.
9. Junipero Serra Boulevard / John Daly Boulevard / SB Ramps: The LOS would worsen from LOS D to LOS F at this location due to the increase in traffic volumes from the foreseeable development projects included in Tier 2.
17. 19<sup>th</sup> Avenue / Crespi Drive: The LOS would worsen from LOS D to LOS E at this location due to the increase in traffic volumes from the foreseeable development projects included in Tier 2.



- 19. Sunset Boulevard / Taraval Street: The LOS would worsen from LOS D to LOS F at this location due to the increase in traffic volumes from the foreseeable development projects included in Tier 2.
- 25. Lake Merced Boulevard / Font Boulevard: The LOS would worsen from LOS D to LOS F at this location due to the increase in traffic volumes from the foreseeable development projects included in Tier 2.

Under Tier 4A weekend midday peak hour conditions, no study intersections would improve to acceptable conditions (from LOS E or F to LOS D or better) when compared to Future Baseline (Tier 1) conditions. However, the following intersection would worsen to unacceptable conditions (from LOS D or better to LOS E or F):

- 14. 19<sup>th</sup> Avenue / Winston Drive: The LOS would worsen from LOS D to LOS F at this location due to the increase in traffic volumes from the foreseeable development projects included in Tier 2.

As shown in **Tables III.22** and **Table III.23**, under Tier 4A weekday AM peak hour conditions, the following two intersections would improve to acceptable conditions (from LOS E or F to LOS D or better) when compared to Tier 2 conditions:

- 18. Chumasero Drive / Brotherhood Way: Conversion of this intersection into a split-T intersection with Brotherhood Way / Thomas More Way would improve operating conditions from LOS F to LOS B, as conflicting traffic movements would be reduced and the protected westbound left turn would be eliminated.
- 26. Lake Merced Boulevard / Higuera Avenue: The LOS would improve at this location from LOS F to LOS D as a direct result of the provision of three new access points along Lake Merced Boulevard, thus distributing traffic volumes among four intersections instead of one.

Under Tier 4A weekday PM peak hour conditions, the following intersection would improve to acceptable conditions (from LOS E or F to LOS D or better) when compared to Tier 2 conditions:

- 26. Lake Merced Boulevard / Higuera Avenue: The LOS would be improved at this location from LOS F to LOS D as a direct result of the provision of three new access points along Lake Merced Boulevard, thus distributing traffic volumes among four intersections instead of one.

Under Tier 4A weekend midday peak hour conditions, no study intersections would improve to acceptable conditions (from LOS E or F to LOS D or better) when compared to Tier 2 conditions.

As shown in **Table III.22** and **Table III.23**, under Tier 4A weekday AM, weekday PM, and midday weekend peak hour conditions, no intersections would worsen (from LOS D or better to LOS E or F) when compared to Tier 2 conditions.

All five of the new study intersections are forecasted to operate at an acceptable LOS under Tier 4A weekday AM, weekday PM, and weekend midday peak hour conditions:

- 7a. Junipero Serra Boulevard / Chumasero Drive;

- 18a. Thomas More Way / Brotherhood Way;
- 26a. Lake Merced Boulevard / Vidal Drive;
- 26b. Lake Merced Boulevard / Acevedo Avenue; and
- 26c. Lake Merced Boulevard / Gonzalez Drive.

The proposed intersection modifications included in Tier 4A would primarily affect the following five intersections:

- 7. Junipero Serra Boulevard / 19<sup>th</sup> Avenue: Although the intersection would continue to operate at an unacceptable LOS during the weekday AM and PM peak hours, the addition of the third northbound Junipero Serra Boulevard left-turn lane and elimination of the northbound 19<sup>th</sup> Avenue left-turn movement would improve the intersection operating conditions when compared to Tier 1 and Tier 2 (from LOS F to LOS E during the weekday AM peak hour, and with a reduced V/C ratio in the weekday PM peak hour).
- 16. 19<sup>th</sup> Avenue / Holloway Avenue: During the three peak analysis hours, operations would worsen compared to Tier 1 due to the travel demand associated with the foreseeable development projects proposed in the study area in Tier 2. Compared to Tier 2, all three peak hour operations would remain the same in Tier 4A, as the proposed intersection modifications would minimally affect the geometric configuration of the intersection.
- 17. 19<sup>th</sup> Avenue / Crespi Drive: The growth in traffic volumes under Tier 1 and Tier 2 would result in increased delays in the weekday AM and PM peak hours. The proposed intersection changes in Tier 4A, primarily the new east-west crosswalk, would further worsen operations at the intersection.
- 18. Chumasero Drive / Brotherhood Way: Although this intersection would continue to operate at an unacceptable LOS during the weekday PM peak hour, conversion of this intersection into a split-T intersection with Brotherhood Way / Thomas More Way would reduce delays compared to Tier 1 and Tier 2, as the conflicting traffic movements would be reduced and the protected westbound left turn would be eliminated.
- 27. Lake Merced Boulevard / Brotherhood Way: The intersection would continue to operate at unacceptable LOS during all three periods under Tier 1 and Tier 2. Although the intersection would continue to operate at unacceptable LOS under Tier 4A, the proposed reconfiguration of the intersection would slightly improve operating conditions when compared to Tier 2. The conversion of the existing channelized northbound Lake Merced Boulevard and westbound Brotherhood Way right-turn lanes into dual right-turn lanes with overlapping phasing would somewhat reduce the overall intersection delay at this location. With signal timing improvements, the heavy westbound right-turn movements would essentially not be required to stop, as that phase would be overlapped with the heavy southbound Lake Merced Boulevard left turns.

All other Future Baseline plus Public and Private Improvements (Tier 4A) study intersection LOS would remain the same as under Tier 2 conditions.

#### **Future Baseline plus Public and Private Improvements (Tier 4B)**

Tier 4B conditions include all the assumptions in Tier 4A with the addition of the following features (see pages III.47 through III.50):

- The M Ocean View would be diverted into the Parkmerced neighborhood at the southwest corner of 19<sup>th</sup> Avenue / Holloway Avenue;
- The intersection of 19<sup>th</sup> Avenue / Holloway Avenue would be modified to provide an additional southbound through lane, and a 26-second all-red phase (except for northbound traffic) would be added to the signalization plan; and
- A southbound right-turn lane would be added at 19<sup>th</sup> Avenue / Crespi Drive.

A comparison of intersection LOS under Tier 1, Tier 2, and Future Baseline plus Public and Private Improvements (Tier 4B) conditions is summarized in **Table III.24** and **Table III.25**. Detailed LOS calculations and figures are provided in **Appendix D**.

As shown in **Tables III.24** and **Table III.25**, under Tier 4B weekday AM peak hour conditions, the following two intersections would improve to acceptable conditions (from LOS E or F to LOS D or better) when compared to Tier 1 conditions:

18. Chumasero Drive / Brotherhood Way: Conversion of this intersection into a split-T intersection with Brotherhood Way / Thomas More Way would improve operating conditions from LOS F to LOS B, as conflicting traffic movements would be reduced and the protected westbound left turn would be eliminated.
26. Lake Merced Boulevard / Higuera Avenue: The LOS would improve at this location from LOS F to LOS D as a direct result of the provision of three new access points along Lake Merced Boulevard, thus distributing traffic volumes among four intersections instead of one.

Under Tier 4B weekday AM peak hour conditions, the following two intersections would worsen to unacceptable conditions (from LOS D or better to LOS E or F) when compared to Tier 1 conditions:

14. 19<sup>th</sup> Avenue / Winston Drive: The LOS would worsen from LOS D to LOS F at this location due to the increase in traffic volumes from the foreseeable development projects included in Tier 2.
24. Lake Merced Boulevard / Winston Drive: The LOS would worsen from LOS C to LOS F at this location due to the increase in traffic volumes from the foreseeable development projects included in Tier 2.

Under Tier 4B weekday PM peak hour conditions, the following intersection would improve to acceptable conditions (from LOS E or F to LOS D or better) when compared to Tier 1 conditions:

26. Lake Merced Boulevard / Higuera Avenue: The LOS would be improved at this location from LOS F to LOS D as a direct result of the provision of three new access points along Lake Merced Boulevard, thus distributing traffic volumes among four intersections instead of one.



**Table III.24: Intersection Level of Service – Tier 4B (Weekday Peak Hours)**

Intersection		Peak Hour	Tier 1		Tier 2		Tier 4B	
			LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>
1	Claremont Blvd./ Dewey Blvd./ Taraval St. <sup>2</sup>	AM	A	6.9	A	7.0	A	7.0
		PM	A	7.2	A	7.4	A	7.4
2	Santa Clara Ave./ Vicente St./ Portola Dr.	AM	C	30.5	D	40.2	D	40.2
		PM	C	31.2	D	39.0	D	40.5
3	Junipero Serra Blvd./ Sloat Blvd./ St. Francis Blvd.	AM	F	>80 / 1.09	F	>80 / 1.09	F	>80 / 1.09
		PM	F	>80 / 1.13	F	>80 / 1.17	F	>80 / 1.17
4	Junipero Serra Blvd. / Ocean Ave. / Eucalyptus Dr.	AM	D	41.7	D	46.9	D	46.9
		PM	D	41.0	E	70.2	E	70.2
5	Junipero Serra Blvd. / Winston Dr.	AM	D	35.7	D	38.3	D	38.3
		PM	C	30.8	D	49.3	D	49.3
6	Junipero Serra Blvd. / Holloway Ave.	AM	C	33.2	D	36.9	D	36.9
		PM	C	30.7	D	37.4	D	37.4
7	Junipero Serra Blvd. / 19 <sup>th</sup> Ave.	AM	F	>80 / 0.95	F	>80 / 0.97	E	68.6
		PM	F	>80 / 1.25	F	>80 / 1.30	F	>80 / 1.08
7a	Junipero Serra Blvd / Chumasero Dr.	AM	----	----	----	----	B	19.4
		PM	----	----	----	----	C	27.4
8	Junipero Serra Blvd. / John Daly Blvd. / NB Ramps	AM	D	40.4	D	40.5	D	40.5
		PM	F	>80 / 1.31	F	>80 / 1.40	F	>80 / 1.40
9	Junipero Serra Blvd. / John Daly Blvd. / SB Ramps	AM	C	20.5	C	20.4	C	20.4
		PM	D	52.5	F	>80 / 1.17	F	>80 / 1.17
10	19 <sup>th</sup> Ave. / Taraval St.	AM	C	26.9	C	28.9	C	28.9
		PM	B	20.0	C	24.0	C	21.6
11	19 <sup>th</sup> Ave. / Sloat Blvd.	AM	F	>80 / 1.48	F	>80 / 1.51	F	>80 / 1.51
		PM	F	>80 / 1.56	F	>80 / 1.63	F	>80 / 1.63
12	19 <sup>th</sup> Ave. / Ocean Ave.	AM	D	46.9	D	46.1	D	46.1
		PM	F	>80 / 1.58	F	>80 / 1.63	F	>80 / 1.63
13	19 <sup>th</sup> Ave. / Eucalyptus Dr.	AM	C	22.7	C	23.1	C	23.1
		PM	E	72.7	F	>80 / 1.18	F	>80 / 1.18
14	19 <sup>th</sup> Ave. / Winston Dr.	AM	D	52.9	F	>80 / 1.32	F	>80 / 1.32
		PM	F	>80 / 1.34	F	>80 / 1.70	F	>80 / 1.70
15	19 <sup>th</sup> Ave. / Buckingham Wy. <sup>3</sup>	AM	F	>50 / 0.70	F	>50 / 0.83	F	>50 / 0.83
		PM	F	>50 / 1.81	F	>50 / 2.20	F	>50 / 2.20
16	19 <sup>th</sup> Ave. / Holloway Ave.	AM	E	65.9	E	59.7	E	62.2
		PM	F	>80 / 0.88	F	>80 / 1.03	F	>80 / 0.93
17	19 <sup>th</sup> Ave. / Crespi Dr.	AM	E	58.1	E	64.8	E	75.7
		PM	D	53.7	E	69.9	E	74.7
18	Chumasero Dr. / Brotherhood Wy.	AM	F	>80 / 0.97	F	>80 / 1.48	B	19.7
		PM	F	>80 / 1.12	F	>80 / 1.74	F	>80 / 0.93
18a	Thomas More Wy. / Brotherhood Wy.	AM	----	----	----	----	C	23.0
		PM	----	----	----	----	C	21.9
19	Sunset Blvd. / Taraval St.	AM	C	21.8	D	43.0	D	43.0
		PM	D	53.1	F	>80 / 0.96	F	>80 / 0.96

Table III.24 (continued)

	Intersection	Peak Hour	Tier 1		Tier 2		Tier 4B	
			LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>
20	Sunset Blvd. / Ocean Ave.	AM	B	12.1	B	13.7	B	13.7
		PM	B	13.5	C	30.5	D	30.5
21	Skyline Blvd. / Sloat Blvd. / 39 <sup>th</sup> Ave. <sup>4</sup>	AM	C	17.2	C	17.5	C	17.5
		PM	D	27.9	D	29.4	D	29.4
22	Skyline Blvd. / Lk. Merced Blvd. (North) <sup>3</sup>	AM	C	15.2	C	15.1	C	15.1
		PM	C	17.7	C	17.5	C	17.5
	Skyline Blvd. / Lk. Merced Blvd. (South) <sup>3,5</sup>	AM	F	>50 / 0.39	F	>50 / 0.38	F	>50 / 0.38
		PM	F	>50 / 0.92	F	>50 / 0.90	F	>50 / 0.90
23	Sunset Blvd. / Lake Merced Blvd. <sup>3</sup>	AM	<b>F</b>	<b>&gt;50 / 0.63</b>	<b>F</b>	<b>&gt;50 / 1.10</b>	<b>F</b>	<b>&gt;50 / 1.10</b>
		PM	<b>F</b>	<b>&gt;50 / 1.37</b>	<b>F</b>	<b>&gt;50 / 2.49</b>	<b>F</b>	<b>&gt;50 / 2.49</b>
24	Lake Merced Blvd. / Winston Dr.	AM	C	29.2	<b>F</b>	<b>&gt;80 / 0.81</b>	<b>F</b>	<b>&gt;80 / 0.81</b>
		PM	<b>F</b>	<b>&gt;80 / 0.98</b>	<b>F</b>	<b>&gt;80 / 1.37</b>	<b>F</b>	<b>&gt;80 / 1.37</b>
25	Lake Merced Blvd. / Font Blvd.	AM	<b>E</b>	<b>64.6</b>	<b>F</b>	<b>&gt;80 / 1.47</b>	<b>F</b>	<b>&gt;80 / 1.40</b>
		PM	<b>D</b>	<b>49.7</b>	<b>F</b>	<b>&gt;80 / 1.64</b>	<b>F</b>	<b>&gt;80 / 1.55</b>
26a	Lake Merced Blvd. / Vidal Dr.	AM	----	----	----	----	D	45.2
		PM	----	----	----	----	D	36.0
26b	Lake Merced Blvd / Acevedo Ave.	AM	----	----	----	----	D	43.3
		PM	----	----	----	----	D	34.6
26	Lake Merced Blvd./ Higuera Ave	AM	<b>F</b>	<b>&gt;80 / 0.79</b>	<b>F</b>	<b>&gt;80 / 1.20</b>	D	37.9
		PM	<b>F</b>	<b>&gt;80 / 0.85</b>	<b>F</b>	<b>&gt;80 / 1.57</b>	D	45.4
26c	Lake Merced Blvd. / Gonzalez Dr.	AM	----	----	----	----	D	47.1
		PM	----	----	----	----	D	52.4
27	Lake Merced Blvd. / Brotherhood Wy.	AM	<b>F</b>	<b>&gt;80 / 2.12</b>	<b>F</b>	<b>&gt;80 / 2.45</b>	<b>F</b>	<b>&gt;80 / 1.78</b>
		PM	<b>F</b>	<b>&gt;80 / 2.46</b>	<b>F</b>	<b>&gt;80 / 2.86</b>	<b>F</b>	<b>&gt;80 / 2.20</b>

*Notes:*

**Bold** indicates intersection operating at unacceptable level of service (LOS). Shaded rows indicate a change in LOS, delay, or volume-to-capacity (V/C) ratio from Tier 2 to Tier 4B.

<sup>1</sup> Delay presented in seconds per vehicle. For intersections that operate at LOS F, the delay per vehicle and V/C ratio are presented.

<sup>2</sup> Although intersection is designed as a roundabout, all approaches are controlled by stop signs; as such, it was analyzed as an all-way stop-controlled intersection.

<sup>3</sup> OWSC (one-way stop-controlled) intersection.

<sup>4</sup> AWSC (all-way stop-controlled) intersection.

<sup>5</sup> Though the intersection would operate at an unacceptable LOS, the conditions of the Manual on Uniform Traffic Control Devices (MUTCD) peak hour volume signal warrant would not be met.

Source: AECOM, 2009.

**Table III.25: Intersection Level of Service – Tier 4B (Weekend Peak Hour)**

	Intersection	Tier 1		Tier 2		Tier 4B	
		LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>
3	Junipero Serra Blvd./ Sloat Blvd./ St. Francis Blvd.	<b>F</b>	<b>&gt;80 / 1.11</b>	<b>F</b>	<b>&gt;80 / 1.18</b>	<b>F</b>	<b>&gt;80 / 1.18</b>
7	Junipero Serra Blvd. / 19 <sup>th</sup> Ave.	<b>F</b>	<b>&gt;80 / 1.78</b>	<b>F</b>	<b>&gt;80 / 1.86</b>	<b>F</b>	<b>&gt;80 / 2.23</b>
11	19 <sup>th</sup> Ave. / Sloat Blvd.	<b>F</b>	<b>&gt;80 / 1.51</b>	<b>F</b>	<b>&gt;80 / 1.58</b>	<b>F</b>	<b>&gt;80 / 1.58</b>
14	19 <sup>th</sup> Ave. / Winston Dr.	D	40.4	<b>F</b>	<b>&gt;80 / 1.71</b>	<b>F</b>	<b>&gt;80 / 1.71</b>
15	19 <sup>th</sup> Ave. / Buckingham Wy. <sup>2</sup>	<b>E</b>	<b>49.2</b>	<b>F</b>	<b>&gt;50 / 0.95</b>	<b>F</b>	<b>&gt;50 / 0.95</b>
16	19 <sup>th</sup> Ave. / Holloway Ave.	C	25.7	D	41.8	D	47.9
27	Lake Merced Blvd. / Brotherhood Wy.	<b>E</b>	<b>59.2</b>	<b>F</b>	<b>&gt;80 / 2.44</b>	<b>F</b>	<b>&gt;80 / 1.91</b>

*Notes:*

**Bold** indicates intersection operating at unacceptable level of service (LOS). Shaded rows indicate a change in LOS, delay, or volume-to-capacity (V/C) ratio from Tier 2 to Tier 4B.

<sup>1</sup> Delay presented in seconds per vehicle. For intersections that operate at LOS F, the delay per vehicle and V/C ratio are presented.

<sup>2</sup> OWSC (one-way stop-controlled) intersection.

Source: AECOM, 2009.

Under Tier 4B weekday PM peak hour conditions, the following five intersections would worsen to unacceptable conditions (from LOS D or better to LOS E or F) when compared to Tier 1 conditions:

4. Junipero Serra Boulevard / Ocean Avenue / Eucalyptus Drive: The LOS would worsen from LOS D to LOS E at this location due to the increase in traffic volumes from the foreseeable development projects included in Tier 2.
9. Junipero Serra Boulevard / John Daly Boulevard / SB Ramps: The LOS would worsen from LOS D to LOS F at this location due to the increase in traffic volumes from the foreseeable development projects included in Tier 2.
17. 19<sup>th</sup> Avenue / Crespi Drive: The LOS would worsen from LOS D to LOS E at this location due to the increase in traffic volumes from the foreseeable development projects included in Tier 2 and the modifications to the intersection included in Tier 4B.
19. Sunset Boulevard / Taraval Street: The LOS would worsen from LOS D to LOS F at this location due to the increase in traffic volumes from the foreseeable development projects included in Tier 2.



- 25. Lake Merced Boulevard / Font Boulevard: The LOS would worsen from LOS D to LOS F at this location due to the increase in traffic volumes from the foreseeable development projects included in Tier 2.

Under Tier 4B weekend midday peak hour conditions, no study intersections would improve to acceptable conditions (from LOS E or F to LOS D or better) when compared to Tier 1 conditions. However, the following intersection would worsen to unacceptable LOS (from LOS D or better to LOS E or F):

- 14. 19<sup>th</sup> Avenue / Winston Drive: The LOS would worsen from LOS D to LOS F at this location due to the increase in traffic volumes from the foreseeable development projects included in Tier 2.

As shown in **Table III.24** and **Table III.25**, under Tier 4B weekday AM peak hour conditions, the following two intersections would improve to acceptable conditions (from LOS E or F to LOS D or better, or from LOS F to LOS E) when compared to Tier 2 conditions:

- 18. Chumasero Drive / Brotherhood Way: Conversion of this intersection into a split-T intersection with Brotherhood Way / Thomas More Way would substantially improve operating conditions from LOS F to LOS B, as conflicting traffic movements would be reduced and the protected westbound left turn would be eliminated.
- 26. Lake Merced Boulevard / Higuera Avenue: Conditions would be improved at this location from LOS F to LOS D as a direct result of the provision of three new access points along Lake Merced Boulevard, thus distributing traffic volumes among four intersections instead of one.

Under Tier 4B weekday PM peak hour conditions, the following intersection would improve to acceptable conditions (from LOS E or F to LOS D or better, or from LOS F to LOS E) when compared to Tier 2 conditions:

- 26. Lake Merced Boulevard / Higuera Avenue: The LOS would be improved at this location from LOS F to LOS D as a direct result of the provision of three new access points along Lake Merced Boulevard, thus distributing traffic volumes among four intersections instead of one.

Under Tier 4B weekend midday peak hour conditions, no study intersections would improve from acceptable conditions (from LOS E or F to LOS D or better) when compared to Tier 2 conditions.

As shown in **Table III.24** and **Table III.25**, under Tier 4B weekday AM, weekday PM, and midday weekend peak hour conditions, no intersections would worsen to unacceptable conditions (from LOS D or better to LOS E or F) when compared to Tier 2 conditions.

All five of the new study intersections are forecast to operate at an acceptable LOS under Tier 4B weekday AM, weekday PM, and weekend midday peak hour conditions:

- 7a. Junipero Serra Boulevard / Chumasero Drive;
- 18a. Thomas More Way / Brotherhood Way;
- 26a. Lake Merced Boulevard / Vidal Drive;

- 26b. Lake Merced Boulevard / Acevedo Avenue; and
- 26c. Lake Merced Boulevard / Gonzalez Drive.

The proposed intersection modifications included in Tier 4B would primarily affect five intersections, as follows:

7. Junipero Serra Boulevard / 19<sup>th</sup> Avenue: Although the intersection would continue to operate at an unacceptable LOS during the weekday AM and PM peak hours, the addition of the third northbound Junipero Serra Boulevard left-turn lane and elimination of the northbound 19<sup>th</sup> Avenue left-turn movement would improve the intersection operating conditions when compared to Tier 1 and Tier 2 (from LOS F to LOS E during the weekday AM peak hour, and with a reduced V/C ratio in the weekday PM peak hour).
16. 19<sup>th</sup> Avenue / Holloway Avenue: At this intersection, the M Ocean View would cross diagonally from its current alignment in the 19<sup>th</sup> Avenue median into Parkmerced, requiring a 26-second all-red phase (except for northbound vehicles). However, a fourth southbound lane would be created to offset the impact on southbound traffic flows. During all analysis periods, intersection operating conditions would be similar to those under Tier 1 and Tier 2.
17. 19<sup>th</sup> Avenue / Crespi Drive: The growth in traffic volumes under Tier 1 and Tier 2 would result in increased delays in the weekday AM and PM peak hours. The proposed intersection changes in Tier 4B, primarily the new east-west crosswalk, would further worsen operations at the intersection.
18. Chumasero Drive / Brotherhood Way: Although this intersection would continue to operate at an unacceptable LOS during the weekday PM peak hour, conversion of this intersection into a split-T intersection with Brotherhood Way / Thomas More Way would reduce delays compared to Tier 1 and Tier 2, as the conflicting traffic movements would be reduced and the protected westbound left turn would be eliminated.
27. Lake Merced Boulevard / Brotherhood Way: The intersection would continue to operate at unacceptable LOS during all three periods under Tier 1 and Tier 2. Although the intersection would continue to operate at unacceptable LOS under Tier 4B, the proposed reconfiguration of the intersection would slightly improve operating conditions when compared to Tier 2. The conversion of the existing channelized northbound Lake Merced Boulevard and westbound Brotherhood Way right-turn lanes into dual right-turn lanes with overlapping phasing would somewhat reduce the overall intersection delay at this location. With signal timing improvements, the heavy westbound right-turn movements would essentially not be required to stop, as that phase would be overlapped with the heavy southbound Lake Merced Boulevard left-turns.

All other Future Baseline plus Public and Private Improvements (Tier 4B) study intersection LOS would remain the same as under Tier 2 conditions.

As noted above, the rerouting of the M Ocean View light rail line into the Parkmerced neighborhood would require a 26-second all-red phase at the intersection of 19<sup>th</sup> Avenue / Holloway Avenue (except for the northbound approach) and the corresponding increase in the overall signal cycle length. Since the traffic signals along 19<sup>th</sup> Avenue are synchronized, these proposed modifications could affect the progression of vehicles in both the northbound and

southbound directions. However, signalization with the adjacent 19<sup>th</sup> Avenue / Crespi Drive intersection is coordinated (both intersections operate together), and the next signalized intersections (19<sup>th</sup> Avenue / Winston Drive to the north and Junipero Serra Boulevard / 19<sup>th</sup> Avenue to the south) are relatively far away. As such, the increase in cycle length and the all-red phase would not noticeably impair the progression of vehicles along 19<sup>th</sup> Avenue.

#### **Future Baseline plus Public and Private Improvements (Tier 4C)**

Tier 4C conditions include all the assumptions in Tier 4B with the addition of the following features (see pages III.50 through III.54):

- As with Tier 4B, the M Ocean View would be diverted into the Parkmerced neighborhood at the southwest corner of 19<sup>th</sup> Avenue / Holloway Avenue. The route would be configured into a short-line and long-line service, with half the trains directed from the Parkmerced neighborhood back out to its current alignment at the west corner of Junipero Serra Boulevard / 19<sup>th</sup> Avenue;
- A southbound through-right lane and a northbound left-turn pocket would be added at 19<sup>th</sup> Avenue / Crespi Drive; and
- An additional right-turn lane would be added to southbound 19<sup>th</sup> Avenue at Junipero Serra Boulevard, and a 26-second all-red phase would be added to the signalization plan.

A comparison of Tier 1, Tier 2, and Future Baseline Plus Public and Private Improvements (Tier 4C) conditions intersection LOS is summarized in **Table III.26** and **Table III.27**. Detailed LOS calculations and figures are provided in **Appendix D**.

As shown in **Tables III.26** and **Table III.27**, under Tier 4C weekday AM peak hour conditions, the following two intersections would improve to acceptable conditions (from LOS E or F to LOS D or better) when compared to Tier 1 conditions:

18. Chumasero Drive / Brotherhood Way: Conversion of this intersection into a split-T intersection with Brotherhood Way / Thomas More Way would improve operating conditions from LOS F to LOS B, as conflicting traffic movements would be reduced and the protected westbound left turn would be eliminated.
26. Lake Merced Boulevard / Higuera Avenue: The LOS would improve at this location from LOS F to LOS D as a direct result of the provision of three new access points along Lake Merced Boulevard, thus distributing traffic volumes among four intersections instead of one.

Under Tier 4C weekday AM peak hour conditions, the following two intersections would worsen to unacceptable conditions (from LOS D or better to LOS E or F) when compared to Tier 1 conditions:

14. 19<sup>th</sup> Avenue / Winston Drive: The LOS would worsen from LOS D to LOS F at this location due to the increase in traffic volumes from the foreseeable development projects included in Tier 2.
24. Lake Merced Boulevard / Winston Drive: The LOS would worsen from LOS C to LOS F at this location due to the increase in traffic volumes from the foreseeable development projects included in Tier 2.



Table III.26: Intersection Level of Service – Tier 4C (Weekday Peak Hours)

Intersection		Peak Hour	Tier 1		Tier 2		Tier 4C	
			LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>
1	Claremont Blvd./ Dewey Blvd./ Taraval St. <sup>2</sup>	AM	A	6.9	A	7.0	A	7.0
		PM	A	7.2	A	7.4	A	7.4
2	Santa Clara Ave./ Vicente St./ Portola Dr.	AM	C	30.5	D	40.2	D	40.2
		PM	C	31.2	D	39.0	D	39.0
3	Junipero Serra Blvd./ Sloat Blvd./ St. Francis Blvd.	AM	F	>80 / 1.09	F	>80 / 1.09	F	>80 / 1.09
		PM	F	>80 / 1.13	F	>80 / 1.17	F	>80 / 1.17
4	Junipero Serra Blvd. / Ocean Ave. / Eucalyptus Dr.	AM	D	41.7	D	46.9	D	46.9
		PM	D	41.0	E	70.2	E	70.2
5	Junipero Serra Blvd. / Winston Dr.	AM	D	35.7	D	38.3	D	38.3
		PM	C	30.8	D	49.3	D	49.3
6	Junipero Serra Blvd. / Holloway Ave.	AM	C	33.2	D	36.9	C	34.8
		PM	C	30.7	D	37.4	C	31.8
7	Junipero Serra Blvd. / 19 <sup>th</sup> Ave.	AM	F	>80 / 0.95	F	>80 / 0.97	E	57.4
		PM	F	>80 / 1.25	F	>80 / 1.30	F	>80 / 0.87
7a	Junipero Serra Blvd / Chumasero Dr.	AM	----	----	----	----	C	24.5
		PM	----	----	----	----	C	31.3
8	Junipero Serra Blvd. / John Daly Blvd. / NB Ramps	AM	D	40.4	D	40.5	D	40.4
		PM	F	>80 / 1.31	F	>80 / 1.40	F	>80 / 1.40
9	Junipero Serra Blvd. / John Daly Blvd. / SB Ramps	AM	C	20.5	C	20.4	C	20.4
		PM	D	52.5	F	>80 / 1.17	F	>80 / 1.17
10	19 <sup>th</sup> Ave. / Taraval St.	AM	C	26.9	C	28.9	C	28.9
		PM	B	20.0	C	24.0	C	24.0
11	19 <sup>th</sup> Ave. / Sloat Blvd.	AM	F	>80 / 1.48	F	>80 / 1.51	F	>80 / 1.51
		PM	F	>80 / 1.56	F	>80 / 1.63	F	>80 / 1.63
12	19 <sup>th</sup> Ave. / Ocean Ave.	AM	D	46.9	D	46.1	D	46.1
		PM	F	>80 / 1.58	F	>80 / 1.63	F	>80 / 1.63
13	19 <sup>th</sup> Ave. / Eucalyptus Dr.	AM	C	22.7	C	23.1	C	23.1
		PM	E	72.7	F	>80 / 1.18	F	>80 / 1.18
14	19 <sup>th</sup> Ave. / Winston Dr.	AM	D	52.9	F	>80 / 1.32	F	>80 / 1.32
		PM	F	>80 / 1.34	F	>80 / 1.70	F	>80 / 1.70
15	19 <sup>th</sup> Ave. / Buckingham Wy. <sup>3</sup>	AM	F	>50 / 0.70	F	>50 / 0.83	F	>50 / 0.83
		PM	F	>50 / 1.81	F	>50 / 2.20	F	>50 / 2.20
16	19 <sup>th</sup> Ave. / Holloway Ave.	AM	E	65.9	E	59.7	E	61.5
		PM	F	>80 / 0.88	F	>80 / 1.03	F	>80 / 0.88
17	19 <sup>th</sup> Ave. / Crespi Dr.	AM	E	58.1	E	64.8	E	74.1
		PM	D	53.7	E	69.9	F	>80 / 0.76
18	Chumasero Dr. / Brotherhood Wy.	AM	F	>80 / 0.97	F	>80 / 1.48	B	19.7
		PM	F	>80 / 1.12	F	>80 / 1.74	F	>80 / 0.93
18a	Thomas More Wy. / Brotherhood Wy.	AM	----	----	----	----	C	23.0
		PM	----	----	----	----	C	22.3

Table III.26 (continued)

Intersection		Peak Hour	Tier 1		Tier 2		Tier 4C	
			LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>
19	Sunset Blvd. / Taraval St.	AM	C	21.8	D	43.0	D	43.0
		PM	D	53.1	F	>80 / 0.96	F	>80 / 0.96
20	Sunset Blvd. / Ocean Ave.	AM	B	12.1	B	13.7	B	13.7
		PM	B	13.5	C	30.5	C	30.5
21	Skyline Blvd. / Sloat Blvd. / 39 <sup>th</sup> Ave. <sup>4</sup>	AM	C	17.2	C	17.5	C	17.5
		PM	D	27.9	D	29.4	D	29.4
22	Skyline Blvd. / Lk. Merced Blvd. (North) <sup>3</sup>	AM	C	15.2	C	15.1	C	15.1
		PM	C	17.7	C	17.5	C	17.5
	Skyline Blvd. / Lk. Merced Blvd. (South) <sup>3,5</sup>	AM	F	>50 / 0.39	F	>50 / 0.38	F	>50 / 0.38
		PM	F	>50 / 0.92	F	>50 / 0.90	F	>50 / 0.90
23	Sunset Blvd. / Lake Merced Blvd. <sup>3</sup>	AM	F	>50 / 0.63	F	>50 / 1.10	F	>50 / 1.10
		PM	F	>50 / 1.37	F	>50 / 2.49	F	>50 / 2.49
24	Lake Merced Blvd. / Winston Dr.	AM	C	29.2	F	>80 / 0.81	F	>80 / 0.81
		PM	F	>80 / 0.98	F	>80 / 1.37	F	>80 / 1.37
25	Lake Merced Blvd. / Font Blvd.	AM	E	64.6	F	>80 / 1.47	F	>80 / 1.40
		PM	D	49.7	F	>80 / 1.64	F	>80 / 1.55
26a	Lake Merced Blvd. / Vidal Dr.	AM	----	----	----	----	D	45.2
		PM	----	----	----	----	D	36.0
26b	Lake Merced Blvd / Acevedo Ave.	AM	----	----	----	----	D	43.3
		PM	----	----	----	----	C	34.6
26	Lake Merced Blvd./ Higuera Ave	AM	F	>80 / 0.79	F	>80 / 1.20	D	37.9
		PM	F	>80 / 0.85	F	>80 / 1.57	D	45.4
26c	Lake Merced Blvd. / Gonzalez Dr.	AM	----	----	----	----	C	33.6
		PM	----	----	----	----	D	52.4
27	Lake Merced Blvd. / Brotherhood Wy.	AM	F	>80 / 2.12	F	>80 / 2.45	F	>80 / 1.78
		PM	F	>80 / 2.46	F	>80 / 2.86	F	>80 / 2.20

*Notes:*

**Bold** indicates intersection operating at unacceptable level of service (LOS). Shaded rows indicate a change in LOS, delay, or volume-to-capacity (V/C) ratio from Tier 2 to Tier 4C.

<sup>1</sup> Delay presented in seconds per vehicle. For intersections that operate at LOS F, the delay per vehicle and V/C ratio are presented.

<sup>2</sup> Although intersection is designed as a roundabout, all approaches are controlled by stop signs; as such, it was analyzed as an all-way stop-controlled intersection.

<sup>3</sup> OWSC (one-way stop-controlled) intersection.

<sup>4</sup> AWSC (all-way stop-controlled) intersection.

<sup>5</sup> Though the intersection would operate at an unacceptable LOS, the conditions of the Manual on Uniform Traffic Control Devices (MUTCD) peak hour volume signal warrant would not be met.

Source: AECOM, 2009.

**Table III.27: Intersection Level of Service – Tier 4C (Weekend Peak Hour)**

	Intersection	Peak Hour	Tier 1		Tier 2		Tier 4C	
			LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>
3	Junipero Serra Blvd./ Sloat Blvd./ St. Francis Blvd.	AM	F	>80 / 1.11	F	>80 / 1.18	F	>80 / 1.18
7	Junipero Serra Blvd. / 19 <sup>th</sup> Ave.	AM	F	>80 / 1.78	F	>80 / 1.86	F	>80 / 1.47
11	19 <sup>th</sup> Ave. / Sloat Blvd.	AM	F	>80 / 1.51	F	>80 / 1.58	F	>80 / 1.58
14	19 <sup>th</sup> Ave. / Winston Dr.	AM	D	40.4	F	>80 / 1.71	F	>80 / 1.71
15	19 <sup>th</sup> Ave. / Buckingham Wy. <sup>2</sup>	AM	E	49.2	F	>50 / 0.95	F	>50 / 0.95
16	19 <sup>th</sup> Ave. / Holloway Ave.	AM	C	25.7	D	41.8	E	56.8
27	Lake Merced Blvd. / Brotherhood Wy.	AM	E	59.2	F	>80 / 2.44	F	>80 / 1.91

Notes:

**Bold** indicates intersection operating at unacceptable level of service (LOS). Shaded rows indicate a change in LOS, delay, or volume-to-capacity (V/C) ratio from Tier 2 to Tier 4C.

AWSC = All-way stop-controlled

OWSC = One way stop-controlled

<sup>1</sup> Delay presented in seconds per vehicle. For intersections that operate at LOS F, the delay per vehicle and V/C ratio are presented.

<sup>2</sup> OWSC (one-way stop-controlled) intersection.

Source: AECOM, 2009.

Under Tier 4C weekday PM peak hour conditions, the following intersection would improve to acceptable conditions (from LOS E or F to LOS D or better) when compared to Tier 1 conditions:

26. Lake Merced Boulevard / Higuera Avenue: The LOS would be improved at this location from LOS F to LOS D as a direct result of the provision of three new access points along Lake Merced Boulevard, thus distributing traffic volumes among four intersections instead of one.

During Tier 4C weekday PM peak hour conditions, the following five intersections would worsen to unacceptable conditions (from LOS D or better to LOS E or F) when compared to Tier 1 conditions:

4. Junipero Serra Boulevard / Ocean Avenue / Eucalyptus Drive: The LOS would worsen from LOS D to LOS E at this location due to the increase in traffic volumes from the foreseeable development projects included in Tier 2.
9. Junipero Serra Boulevard / John Daly Boulevard / SB Ramps: The LOS would worsen from LOS D to LOS F at this location due to the increase in traffic volumes from the foreseeable development projects included in Tier 2.
17. 19<sup>th</sup> Avenue / Crespi Drive: The LOS would worsen from LOS D to LOS F at this location due to the increase in traffic volumes from the foreseeable development projects included in Tier 2 and the modifications to the intersection included in Tier 4C.



- 19. Sunset Boulevard / Taraval Street: The LOS would worsen from LOS D to LOS F at this location due to the increase in traffic volumes from the foreseeable development projects included in Tier 2.
- 25. Lake Merced Boulevard / Font Boulevard: The LOS would worsen from LOS D to LOS F at this location due to the increase in traffic volumes from the foreseeable development projects included in Tier 2.

Under Tier 4C weekend midday peak hour conditions, no study intersections would improve to acceptable conditions (from LOS E or F to LOS D or better) when compared to Tier 1 conditions. However, the following two intersections would worsen to unacceptable LOS (from LOS D or better to LOS E or F):

- 14. 19<sup>th</sup> Avenue / Winston Drive: The LOS would worsen from LOS D to LOS F at this location due to the increase in traffic volumes from the foreseeable development projects included in Tier 2.
- 16. 19<sup>th</sup> Avenue/Holloway Avenue: The LOS would worsen from LOS C to LOS E at this location due to the increase in traffic volumes from the foreseeable development projects included in Tier 2 and the intersection modifications included in Tier 4C.

As shown in **Table III.26** and **Table III.27**, under Tier 4C weekday AM peak hour conditions, the following two intersections would improve to acceptable conditions (from LOS E or F to LOS D or better, or from LOS F to LOS E) when compared to Tier 2 conditions:

- 18. Chumasero Drive / Brotherhood Way: Conversion of this intersection into a split-T intersection with Brotherhood Way / Thomas More Way would substantially improve operating conditions from LOS F to LOS B, as conflicting traffic movements would be reduced and the protected westbound left turn would be eliminated.
- 26. Lake Merced Boulevard / Higuera Avenue: Conditions would be improved at this location from LOS F to LOS D as a direct result of the provision of three new access points along Lake Merced Boulevard, thus distributing traffic volumes among four intersections instead of one.

Under Tier 4C weekday PM peak hour conditions, the following intersection would improve to acceptable conditions (from LOS E or F to LOS D or better, or from LOS F to LOS E) when compared to Tier 2 conditions:

- 26. Lake Merced Boulevard / Higuera Avenue: Conditions would be improved at this location from LOS F to LOS D as a direct result of the provision of three new access points along Lake Merced Boulevard, thus distributing traffic volumes among four intersections instead of one.

During Tier 4C weekend midday peak hour conditions, no study intersections would improve to acceptable conditions (from LOS E or F to LOS D or better) when compared to Tier 2 conditions.

As shown in **Table III.26** and **Table III.27**, under Tier 4C weekday AM, weekday PM, and midday weekend peak hour conditions, no intersections would worsen (from LOS D or better to LOS E or F) when compared to Tier 2 conditions.

All five of the new study intersections are forecast to operate at an acceptable LOS under Tier 4C in the weekday AM, weekday PM and weekend midday peak hour conditions:

- 7a. Junipero Serra Boulevard / Chumasero Drive;
- 18a. Thomas More Way / Brotherhood Way;
- 26a. Lake Merced Boulevard / Vidal Drive;
- 26b. Lake Merced Boulevard / Acevedo Avenue; and
- 26c. Lake Merced Boulevard / Gonzalez Drive.

The proposed intersection modifications included in Tier 4C would primarily affect five intersections, as follows:

- 7. Junipero Serra Boulevard / 19<sup>th</sup> Avenue: Although the intersection would continue to operate at an unacceptable LOS during the weekday AM and PM peak hours, the addition of the third northbound Junipero Serra Boulevard left-turn lane, elimination of the northbound 19<sup>th</sup> Avenue left-turn movement, and provision of the fourth southbound right-turn lane would improve the intersection operating conditions when compared to Tier 1 and Tier 2, as seen in the improvement to the V/C ratios. In addition, weekday AM peak hour conditions would improve to LOS E.
- 16. 19<sup>th</sup> Avenue / Holloway Avenue: At this intersection, the M Ocean View would cross diagonally from its current alignment in the 19<sup>th</sup> Avenue median into Parkmerced, requiring a 26-second all-red phase (except for northbound vehicles). However, a fourth southbound lane would be created to offset the impact on southbound traffic flows. During all analysis periods, intersection operating conditions would be similar to those under Tier 1 and Tier 2.
- 17. 19<sup>th</sup> Avenue / Crespi Drive: The growth in traffic volumes under Tier 1 and Tier 2 would result in increased delays in the weekday AM and PM peak hours. The proposed intersection changes in Tier 4C, primarily the new east-west crosswalk, would further worsen operations at the intersection.
- 18. Chumasero Drive / Brotherhood Way: Although this intersection would continue to operate at an unacceptable LOS during the weekday PM peak hour, conversion of this intersection into a split-T intersection with Brotherhood Way / Thomas More Way would reduce delays compared to Tier 1 and Tier 2, as the conflicting traffic movements would be reduced and the protected westbound left turn would be eliminated.
- 27. Lake Merced Boulevard / Brotherhood Way: The intersection would continue to operate at unacceptable LOS during all three periods under Tier 1 and Tier 2. Although the intersection would continue to operate at unacceptable LOS under Tier 4C, the proposed reconfiguration of the intersection would slightly improve operating conditions when compared to Tier 2. The conversion of the existing channelized northbound Lake Merced Boulevard and westbound Brotherhood Way right-turn lanes into dual right-turn lanes with overlapping phasing would somewhat reduce the overall intersection delay at this location. With signal timing improvements, the heavy westbound right-turn movements would essentially not be required to stop, as that phase would be overlapped with the heavy southbound Lake Merced Boulevard left turns.

All other Future Baseline plus Public and Private Improvements (Tier 4C) study intersection LOS would remain the same as under Tier 2 conditions.

As noted above, the rerouting of the M Ocean View light rail line into the Parkmerced neighborhood would require a 26-second all-red phase at the intersection of 19<sup>th</sup> Avenue / Holloway Avenue (except for the northbound approach) and at the intersection of Junipero Serra Boulevard / 19<sup>th</sup> Avenue (for all movements), and the corresponding increase in the overall signal cycle lengths. Since the traffic signals along 19<sup>th</sup> Avenue are synchronized, these proposed modifications could affect the progression of vehicles in both the northbound and southbound directions. However, signalization of 19<sup>th</sup> Avenue / Holloway Avenue is coordinated with the adjacent 19<sup>th</sup> Avenue / Crespi Drive (both intersections operate together), and the next signalized intersection (19<sup>th</sup> Avenue / Winston Drive to the north) is relatively far away. As such, the increase in cycle length and the all-red phase would not noticeably impair the progression of vehicles along 19<sup>th</sup> Avenue.

#### TRANSIT ANALYSIS

Tier 3 would include the proposed reconfiguration of the M Ocean View light rail line, with the portion south of SFSU transferred to the J Church line. To accommodate the new J Church line, a new station may need to be constructed south of Holloway Avenue. (The end-of-the-line location for the J Church has not been finalized, but could be located at either the Stonestown Station or the SFSU Station.) With this line configuration, riders would be forced to transfer between the M Ocean View and J Church lines to continue to points north or south. The number of riders making this transfer would be between 200 and 250 riders during the weekday AM peak hour, and between 250 and 400 riders during the weekday PM peak hour. If the two lines do not share a station at SFSU, passengers would be inconvenienced as they would need to walk across Holloway Avenue and 19<sup>th</sup> Avenue to transfer. In addition, operational issues could result since the tail tracks and turnarounds of the two lines would overlap, which could cause delays to operations. Furthermore, since the station(s) would remain in the 19<sup>th</sup> Avenue median, walking access would not improve, although splitting the stations could reduce the current overcrowding issues.

Tier 4A would have the same M Ocean View operations as under current conditions, but with the service headway changes included in the TEP. As such, no additional ridership or operational concerns would arise. However, since the station would remain in the 19<sup>th</sup> Avenue median, walking access to the station would not improve and the current overcrowding issues would remain.

With Tier 4B, there would be transfers needed between the M Ocean View and J Church lines, with the M Ocean View station located within the Parkmerced neighborhood and the J Church station located at the south side of the 19<sup>th</sup> Avenue / Holloway Avenue intersection. Under this scenario, riders would need to transfer between the M Ocean View and J Church lines to continue to points north or south. The number of riders making this transfer would be between 200 and 250 riders during the weekday AM peak hour, and between 250 and 400 riders during the



weekday PM peak hour, as with Tier 3. Since the trains would not share a platform, however, this transfer would require crossing of a portion of 19<sup>th</sup> Avenue. This forced transfer between the lines and walk across 19<sup>th</sup> Avenue would be an inconvenience for riders. Since there would be a new station for the M Ocean View inside the Parkmerced neighborhood, however, walking access to the station would improve and the overcrowding issues would be reduced.

Since Tier 4C would include a new SFSU station within the Parkmerced neighborhood for the M Ocean View, rider conditions would be improved as compared to Tier 3 and Tier 4B. However, riders destined to and from the end-of-the-line station in the southeast corner of the Parkmerced neighborhood would need to transfer between the short-line and long-line service at one of the other new stations in the Parkmerced neighborhood. It is anticipated that few riders would be affected by this transfer, however.

### Screenline Analysis

To determine the Tier 3 conditions, SFMTA's proposed TEP service changes, including modifications to route, frequency, and hours of operation, were incorporated into the screenline analysis. Additional minor modifications were made to the screenline groupings to calculate the Tier 4A, Tier 4B, and Tier 4C screenlines.

The Tier 3, Tier 4A, Tier 4B, and Tier 4C screenlines are summarized in **Table III.28** and **Table III.29**. Detailed screenline calculations are provided in **Appendix G**.

As shown in **Table III.28** and **Table III.29**, there would be substantial changes in capacity and capacity utilization along the East screenline and South screenline under Tier 3 and the various Tier 4 scenarios.

Under Tier 3, capacity would be reduced on the South screenline, as the 28L 19<sup>th</sup> Avenue Limited would no longer serve the Daly City BART station, but would be rerouted to serve the East screenline to/from the Balboa Park BART station and the Excelsior District. Capacity would also be reduced on the East screenline, as the segment of the M Ocean View east of Junipero Serra Boulevard / 19<sup>th</sup> Avenue currently served by two-car trains would instead be served by one-car J Church trains. While the rerouted 28L 19<sup>th</sup> Avenue Limited would cover some of this lost capacity, there would still be a noticeable decrease in capacity on the East screenline in the weekday AM peak hour under Tier 3.

Table III.28: Muni Screenline Summary – Tier 3 and Tier 4 (Weekday AM Peak Hour)

Screenline	Tier 2			Tier 3			Tier 4A			Tier 4B			Tier 4C			
	Rid.	Cap.	Util.	Rid.	Cap.	Util.	Rid.	Cap.	Util.	Rid.	Cap.	Util.	Rid.	Cap.	Util.	
Outbound																
N	18 46 <sup>th</sup> Avenue	150	216	69%	144	216	67%	144	216	67%	144	216	67%	144	216	67%
	28 19 <sup>th</sup> Avenue	408	378	108 %	319	432	74%	319	432	74%	319	432	74%	319	432	74%
	28L 19 <sup>th</sup> Avenue Ltd	162	216	75%	257	324	79%	257	324	79%	257	324	79%	257	324	79%
	29 Sunset	278	324	86%	278	324	86%	278	324	86%	278	324	86%	278	324	86%
	Subtotal	998	1,134	88%	998	1,296	77%	998	1,296	77%	998	1,296	77%	998	1,296	77%
NE	M Ocean View	1,320	1,414	93%	1,320	1,212	109 %	1,320	1,212	109 %	1,320	1,212	109 %	1,320	1,212	109 %
	Subtotal	1,320	1,414	93%	1,320	1,212	109 %	1,320	1,212	109 %	1,320	1,212	109 %	1,320	1,212	109 %
	M Ocean View	239	1,414	17%	--	--	--	239	1,212	20%	--	--	--	239	606	39%
E	29 Sunset	318	324	98%	162	324	50%	162	324	50%	162	324	50%	162	324	50%
	J Church	--	--	--	239	909	26%	--	--	--	239	909	26%	--	--	--
	28L 19 <sup>th</sup> Avenue Ltd	--	--	--	156	324	48%	156	324	48%	156	324	48%	156	324	48%
Subtotal	557	1,738	32%	557	1,557	36%	557	1,860	30%	557	1,557	36%	557	1,254	44%	
S	28 19 <sup>th</sup> Avenue	136	378	36%	174	432	40%	174	432	40%	174	432	40%	174	432	40%
	28L 19 <sup>th</sup> Avenue Ltd	45	270	17%	--	--	--	--	--	--	--	--	--	--	--	--
	Subtotal	181	648	28%	174	432	40%	174	432	40%	174	432	40%	174	432	40%
Parkmerced Shuttle	116	120	97%	116	120	97%	116	120	97%	116	120	97%	116	120	97%	97%
TOTAL All Screenlines		3,172	5,054	63%	3,165	4,617	69%	3,165	4,920	64%	3,165	4,617	69%	3,165	4,314	73%
Inbound																
N	18 46 <sup>th</sup> Avenue	119	216	55%	115	216	53%	115	216	53%	115	216	53%	115	216	53%
	28 19 <sup>th</sup> Avenue	406	486	83%	383	486	79%	383	486	79%	383	486	79%	383	486	79%
	28L 19 <sup>th</sup> Avenue Ltd	156	270	58%	183	324	57%	183	324	57%	183	324	57%	183	324	57%
	29 Sunset	264	216	122 %	264	324	82%	264	324	82%	264	324	82%	264	324	82%
	Subtotal	945	1,188	80%	945	1,350	70%	945	1,350	70%	945	1,350	70%	945	1,350	70%

Table III.28 (continued)

Screenline	Tier 2			Tier 3			Tier 4A			Tier 4B			Tier 4C		
	Rid.	Cap.	Util.	Rid.	Cap.	Util.	Rid.	Cap.	Util.	Rid.	Cap.	Util.	Rid.	Cap.	Util.
NE	581	1,414	41%	581	1,212	48%	581	1,212	48%	581	1,212	48%	581	1,212	48%
	581	1,414	41%	581	1,212	48%	581	1,212	48%	581	1,212	48%	581	1,212	48%
	312	1,414	22%	--	--	--	312	1,212	26%	--	--	--	312	606	52%
	425	324	131%	213	324	66%	213	324	66%	213	324	66%	213	324	66%
E	--	--	--	312	909	34%	--	--	--	312	909	34%	--	--	--
	--	--	--	212	324	65%	212	324	65%	212	324	65%	212	324	65%
	737	1,738	42%	737	1,557	47%	737	1,860	40%	737	1,557	47%	737	1,254	59%
	326	378	86%	499	432	116%	499	432	116%	499	432	116%	499	432	116%
S	180	270	67%	--	--	--	--	--	--	--	--	--	--	--	--
	506	648	78%	499	432	116%	499	432	116%	499	432	116%	499	432	116%
	37	120	31%	37	120	31%	37	120	31%	37	120	31%	37	120	31%
	2,807	5,108	55%	2,800	4,671	60%	2,800	4,974	56%	2,800	4,671	60%	2,800	4,368	64%
TOTAL All Screenlines															

Notes: Rid= Ridership (number of riders); Cap= Capacity (number of riders; Util= Utilization (percent of capacity used))  
Shading indicates unacceptable conditions (at or exceedance of 100% capacity utilization).

Source: Muni, 2008; AECOM, 2009.



Table III.29: Muni Screenline Summary – Tier 3 and Tier 4 (Weekday PM Peak Hour)

Screenline		Tier 2			Tier 3			Tier 4A			Tier 4B			Tier 4C		
		Rid.	Cap.	Util.	Rid.	Cap.	Util.	Rid.	Cap.	Util.	Rid.	Cap.	Util.	Rid.	Cap.	Util.
Outbound																
N	18 46 <sup>th</sup> Avenue	150	216	70%	146	216	67%	146	216	67%	146	216	67%	146	216	67%
	28 19 <sup>th</sup> Avenue	410	378	109 %	317	378	84%	317	378	84%	317	378	84%	317	378	84%
	28L 19 <sup>th</sup> Avenue Ltd	226	324	70%	324	324	100 %	324	324	100 %	324	324	100 %	324	324	100 %
	29 Sunset	271	216	125 %	271	324	84%	271	324	84%	271	324	84%	271	324	84%
	Subtotal	1,057	1,134	93%	1,057	1,242	85%	1,057	1,242	85%	1,057	1,242	85%	1,057	1,242	85%
NE	M Ocean View	1,145	1,212	94%	1,145	1,212	94%	1,145	1,212	94%	1,145	1,212	94%	1,145	1,212	94%
	Subtotal	1,145	1,212	94%	1,145	1,212	94%	1,145	1,212	94%	1,145	1,212	94%	1,145	1,212	94%
E	M Ocean View	595	1,414	42%	--	--	--	595	1,212	49%	--	--	--	595	606	98%
	29 Sunset	325	270	120 %	165	324	51%	165	324	51%	165	324	51%	165	324	51%
	J Church	--	--	--	596	1,010	59%	--	--	--	596	1,010	59%	--	--	--
	28L 19 <sup>th</sup> Avenue Ltd	--	--	--	160	324	49%	160	324	49%	160	324	49%	160	324	49%
	Subtotal	919	1,684	55%	920	1,658	56%	919	1,860	49%	920	1,658	56%	919	1,254	73%
S	28 19 <sup>th</sup> Avenue	235	324	73%	342	324	105 %	342	324	105 %	342	324	105 %	342	324	105 %
	28L 19 <sup>th</sup> Avenue Ltd	112	270	42%	--	--	--	--	--	--	--	--	--	--	--	--
	Subtotal	348	594	59%	342	324	105 %	342	324	105 %	342	324	105 %	342	324	105 %
Parkmerced Shuttle		115	180	64%	114	180	63%	115	180	64%	114	180	63%	115	180	64%
TOTAL All Screenlines		3,584	4,804	75%	3,578	4,616	78%	3,578	4,818	74%	3,578	4,616	78%	3,578	4,212	85%

Table III.29 (continued)

Screenline	Tier 2			Tier 3			Tier 4A			Tier 4B			Tier 4C		
	Rid.	Cap.	Util.	Rid.	Cap.	Util.	Rid.	Cap.	Util.	Rid.	Cap.	Util.	Rid.	Cap.	Util.
<b>Inbound</b>															
18 46 <sup>th</sup> Avenue	153	216	71%	147	216	68%	147	216	68%	147	216	68%	147	216	68%
28 19 <sup>th</sup> Avenue	407	432	94%	373	432	86%	373	432	86%	373	432	86%	373	432	86%
28L 19 <sup>th</sup> Avenue Ltd	159	270	59%	199	324	62%	199	324	62%	199	324	62%	199	324	62%
29 Sunset	331	270	123%	331	324	102%	331	324	102%	331	324	102%	331	324	102%
<i>Subtotal</i>	<i>1,051</i>	<i>1,188</i>	<i>88%</i>	<i>1,051</i>	<i>1,296</i>	<i>81%</i>	<i>1,051</i>	<i>1,296</i>	<i>81%</i>	<i>1,051</i>	<i>1,296</i>	<i>81%</i>	<i>1,051</i>	<i>1,296</i>	<i>81%</i>
M Ocean View	1,547	1,414	109%	1,547	1,212	128%	1,547	1,212	128%	1,547	1,212	128%	1,547	1,212	128%
<i>Subtotal</i>	<i>1,547</i>	<i>1,414</i>	<i>109%</i>	<i>1,547</i>	<i>1,212</i>	<i>128%</i>	<i>1,547</i>	<i>1,212</i>	<i>128%</i>	<i>1,547</i>	<i>1,212</i>	<i>128%</i>	<i>1,547</i>	<i>1,212</i>	<i>128%</i>
M Ocean View	359	1,212	30%	--	--	--	359	1,212	30%	--	--	--	359	606	59%
29 Sunset	418	378	111%	213	324	66%	213	324	66%	213	324	66%	213	324	66%
J Church	--	--	--	359	1,010	36%	--	--	--	359	1,010	36%	--	--	--
28L 19 <sup>th</sup> Avenue Ltd	--	--	--	206	324	63%	206	324	63%	206	324	63%	206	324	63%
<i>Subtotal</i>	<i>777</i>	<i>1,590</i>	<i>49%</i>	<i>777</i>	<i>1,658</i>	<i>47%</i>	<i>777</i>	<i>1,860</i>	<i>42%</i>	<i>777</i>	<i>1,658</i>	<i>47%</i>	<i>777</i>	<i>1,254</i>	<i>62%</i>
28 19 <sup>th</sup> Avenue	180	378	48%	264	378	70%	264	378	70%	264	378	70%	264	378	70%
28L 19 <sup>th</sup> Avenue Ltd	90	324	28%	--	--	--	--	--	--	--	--	--	--	--	--
<i>Subtotal</i>	<i>270</i>	<i>702</i>	<i>38%</i>	<i>264</i>	<i>378</i>	<i>70%</i>	<i>264</i>	<i>378</i>	<i>70%</i>	<i>264</i>	<i>378</i>	<i>70%</i>	<i>264</i>	<i>378</i>	<i>70%</i>
Parkmerced Shuttle	178	180	99%	178	180	99%	178	180	99%	178	180	99%	178	180	99%
<b>TOTAL All Screenlines</b>	<b>3,823</b>	<b>5,074</b>	<b>75%</b>	<b>3,817</b>	<b>4,724</b>	<b>81%</b>	<b>3,817</b>	<b>4,926</b>	<b>77%</b>	<b>3,817</b>	<b>4,724</b>	<b>81%</b>	<b>3,817</b>	<b>4,320</b>	<b>88%</b>

Notes: Rid= Ridership (number of riders); Cap= Capacity (number of riders; Util= Utilization (percent of capacity used))

Shading indicates unacceptable conditions (at or exceedance of 100% capacity utilization).

Source: Muni, 2008; AECOM, 2009.

Among the Tier 4 scenarios, Tier 4C would result in the least capacity on the East screenline, as only half of the M Ocean View trains would serve the East screenline, with the other half terminating inside Parkmerced. In general, however, the various options for Tier 4 would not introduce new capacity utilization issues over Tier 3, as the ridership on the East screenline is low enough that the proposed changes would not result in at or exceedance of transit capacity.

As discussed under the Tier 2 analysis, the proposed Parkmerced shuttle to the Daly City BART station would operate at or near capacity. As this would be a privately operated shuttle, with the ability to adjust its operating plan to meet demand, it could operate with higher capacity utilization than typical public transit lines.

#### Operations Analysis

As documented in Section III.D, the effect of roadway congestion on the on-time performance of transit services within the study area was evaluated by aggregating the average approach delays at each study intersection the transit route passes through. The increases in travel times due to roadway congestion for Tier 3, Tier 4A, Tier 4B, and Tier 4C (as compared to Existing Conditions) are summarized in **Table III.30**. Detailed transit travel time calculations are included in **Appendix H**.

It should be noted that the travel time increases for the J Church assume a new station south of the intersection of 19<sup>th</sup> Avenue / Holloway Avenue and only represent travel time increases through the study area (i.e., west of Junipero Serra Boulevard / 19<sup>th</sup> Avenue).

Under Tier 3, the various public improvements at intersections along 19<sup>th</sup> Avenue are expected to result in slight changes to intersection delay. However, the planned transit signal priority treatments at the 19<sup>th</sup> Avenue intersections would enhance bus flows and result in reduced delays for the 28 19<sup>th</sup> Avenue, 28L 19<sup>th</sup> Avenue Limited, and 29 Sunset bus lines. The implementation of the TEP under Tier 3, with split M Ocean View and J Church operations, would reduce travel times on the M Ocean View through the study area, as the line would terminate at the existing station immediately north of the intersection of 19<sup>th</sup> Avenue / Holloway Avenue. Travel times on the J Church through the study area would be slightly lower than existing travel times on the M Ocean View through the study area because a new station would be constructed south of the intersection of 19<sup>th</sup> Avenue / Holloway Avenue. As a result, the J Church would not be subject to the additional travel time and delay at this intersection.



**Table III.30: Muni Travel Time Increases – Tier 2, Tier 3 and Tier 4**

Route	Peak Hour	Transit Travel Time Increases (m:ss)					
		Tier 1	Tier 2	Tier 3	Tier 4A	Tier 4B	Tier 4C
28 19 <sup>th</sup> Avenue / 28L 19 <sup>th</sup> Avenue Limited							
NB	AM	2:20	3:00	2:20	0:30	1:10	1:40
	PM	5:10	7:00	6:00	3:50	4:20	5:40
SB	AM	3:50	3:50	3:00	3:30	2:50	2:00
	PM	5:00	6:40	5:40	6:30	4:40	3:20
29 Sunset							
NB	AM	0:00	0:10	0:00	0:00	0:20	0:20
	PM	0:00	1:50	1:30	1:30	2:20	1:20
SB	AM	0:50	-0:20	-0:20	-0:20	0:20	0:20
	PM	3:10	2:20	2:20	2:20	2:50	2:30
M Ocean View							
NB	AM	0:20	0:50	-2:10 <sup>1</sup>	0:30	1:10	2:30
	PM	0:30	2:20	-0:40 <sup>1</sup>	1:50	2:30	3:50
SB	AM	0:40	0:40	-0:40 <sup>1</sup>	0:40	2:40	4:00
	PM	0:20	1:20	-1:00 <sup>1</sup>	0:30	2:20	3:30
J Church <sup>2</sup>							
NB	AM	--	--	-0:20	--	-0:40	--
	PM	--	--	-0:50	--	-0:50	--
SB	AM	--	--	0:00	--	0:00	--
	PM	--	--	-0:30	--	0:10	--

**Notes:**

All increases relative to existing travel time, except as noted below.

m:ss = minutes and seconds.

<sup>1</sup> Under Tier 3, the M Ocean View is assumed to terminate at the existing station immediately north of the intersection of 19<sup>th</sup> Avenue / Holloway Avenue.

<sup>2</sup> All travel times calculations for the J Church assume a new station built immediately south of the intersection of 19<sup>th</sup> Avenue / Holloway Avenue. J Church travel time increases are relative to the relevant existing M Ocean View travel times between 19<sup>th</sup> Avenue / Holloway Avenue and Junipero Serra Boulevard / 19<sup>th</sup> Avenue.

Source: AECOM, 2009.

Under Tier 4A, transit travel times on the 28 19<sup>th</sup> Avenue and 28L 19<sup>th</sup> Avenue Limited would decrease in the northbound direction as compared to Tier 1 and Tier 2 as a result of the additional northbound left-turn lane at Junipero Serra Boulevard / 19<sup>th</sup> Avenue. In the southbound direction, travel times would increase slightly in the weekday PM peak hour as compared to Tier 1 as a result of the new traffic signal at Junipero Serra Boulevard / Chumasero Drive. For the 29 Sunset and M Ocean View, minor fluctuations in travel time are expected as compared to both Tier 1 and Tier 2. (Under this scenario, the J Church would not operate in the study area.)

Under Tier 4B, transit travel times on the 28 19<sup>th</sup> Avenue and 28L 19<sup>th</sup> Avenue Limited would generally decrease in all directions as compared to Tier 1 and Tier 2, due to the major capacity improvements such as the additional southbound travel lane at 19<sup>th</sup> Avenue / Holloway Avenue (this lane would be sufficient to address the additional wait times from implementation of the 26-second all-red phase for train crossings) and the additional northbound left-turn lane at

Junipero Serra Boulevard / 19<sup>th</sup> Avenue. Travel times for the 29 Sunset in both directions would increase slightly over Tier 1 and Tier 2, as a result of increased delays at 19<sup>th</sup> Avenue / Holloway Avenue due to the 26-second all-red phase for train crossings. (Since the bus would be making a right turn at the southbound approach, it would not be affected by the proposed additional southbound through lane.) Travel times for the M Ocean View would increase as a result of the realignment to serve Parkmerced, causing net increases in travel time of approximately 1 to 2 minutes in both directions. (Note that under Tier 4B, the M Ocean View would terminate within Parkmerced and the southern portion of the route would be captured by the J Church line.) In addition, travel times for the J Church would be slightly less than for the corresponding existing M Ocean View alignment and similar to the values developed for Tier 3.

Similar to Tier 4B, Tier 4C would result in decreased transit travel times for the 28 19<sup>th</sup> Avenue and 28L 19<sup>th</sup> Avenue Limited as compared to Tier 1 and Tier 2. In the southbound direction, the travel time would decrease substantially as a result of the new southbound travel lane along 19<sup>th</sup> Avenue between Holloway Avenue and Junipero Serra Boulevard, which would offset any increases in delay at the 19<sup>th</sup> Avenue / Crespi Drive from the new northbound left-turn phase. As under Tier 4A and 4B, travel times for the 29 Sunset in both directions would increase slightly over Tier 1 and Tier 2 due to the 26-second all-red phase for train crossings. (Since the bus would be making a right turn at the southbound approach, it would not be affected by the proposed additional southbound through lane.) Travel times for the M Ocean View would increase between one to three minutes over Tier 1 and Tier 2 as a result of the realignment within Parkmerced and the additional signal delays required at 19<sup>th</sup> Avenue / Holloway Avenue and Junipero Serra Boulevard / 19<sup>th</sup> Avenue intersections, where the trains must wait to cross 19<sup>th</sup> Avenue during a transit-only signal phase.

It should be noted that the rerouting of the M Ocean View line within Parkmerced, as proposed in Tier 4C, would increase the run times for the portion of the line that continues to Balboa Park. Due to the longer distance of travel for this alignment, as compared to the current alignment within the median of 19<sup>th</sup> Avenue, the rerouted M Ocean View would have an increase of run times of between 2 to 3 minutes in both the inbound and outbound directions. (This was determined from a review of operating and acceleration/deceleration speeds, design speeds, wait times, dwell times, and other factors.) Based on the current run times from the start and end of each trip (typically between 40 and 50 minutes, depending on direction and time period), the additional travel time through the Parkmerced neighborhood would add about 5 percent to the operating times of the M Ocean View. Based on the planned service frequencies of the M Ocean View with the TEP, this increase in run times would require the use of one additional light rail vehicle during some time periods.

It should also be noted that Tier 4C would allow for the provision of a tail track (storage track) with the terminal stop at the southeast corner of the Parkmerced neighborhood. This tail track

would enhance Muni operations and service reliability by providing a storage area for an extra train or for a disabled train, and would enhance Muni system flexibility.

As previously discussed, increases in travel time have substantial effects for transit operations, as delays in service introduce more variability and reduce service reliability. In addition, longer travel times also increase the operating costs of each route and reduce the quality of service for passengers.

As indicated in **Table III.30**, however, a substantial portion of the future expected increase in transit travel times is due to background growth occurring under Tier 1 conditions. The foreseeable development projects included in Tier 2 would contribute additional increases to travel time, while the transit signal priority improvements proposed under Tier 3 would generally minimize this increase. The roadway and transit changes proposed under the Tier 4 scenarios would cause both travel time increases (e.g., the rerouting of the M Ocean View into the Parkmerced neighborhood under Tier 4B and Tier 4C) and decreases (e.g., the fourth southbound through lane along 19<sup>th</sup> Avenue under Tier 4C). In some cases, travel times would be slightly longer under the Tier 4 scenarios (such as for the M Ocean View and 29 Sunset) than under Tier 1 conditions, but in other cases, Tier 4 scenarios would improve travel times compared to Tier 1 conditions, offsetting the effects of increased traffic congestion on schedule adherence for transit services for not only the foreseeable development projects but also the background development.

## **PEDESTRIAN AND BICYCLE ANALYSIS**

### **Tier 3**

As described in Section III.C, improvements to the transportation network are proposed as part of ongoing studies and programs undertaken by City agencies. Specifically, as part of SFMTA's Better Streets Program, plans exist for traffic calming along Holloway Avenue and Garfield Avenue between Junipero Serra Boulevard and Ashton Street. The traffic calming measures are to include the installation of chicanes, pedestrian islands, bulb-outs, gateway treatments, and speed humps/cushions. Each measure would work to slow traffic through these roadways—especially as vehicles approach Junipero Serra Boulevard—making for safer crossing conditions for pedestrians.

As part of the San Francisco Bicycle Plan, new near-term bicycle facilities are planned for Holloway Avenue, Sagamore Street/Sickles Avenue, Buckingham Way, Portola Drive, and John Muir Drive. Along Holloway Avenue, new bike lanes would be established between Varela Avenue and Junipero Serra Boulevard. These bike lanes would provide a safe way for residents of Parkmerced and SFSU students to ride along Holloway Avenue as they pass both 19<sup>th</sup> Avenue and Junipero Serra Boulevard. Along Sagamore Street and Sickles Avenue, new bike lanes would be established in the westbound direction of Sagamore Street between Plymouth Avenue and Orizaba Avenue, and in the eastbound direction of Sagamore Street between Orizaba Avenue



and Capitol Avenue and of Sickles Avenue between Capitol Avenue and Alemany Boulevard. These new lanes would help bicyclists navigate through an I-280 on- and off-ramp area that is currently somewhat confusing for bicyclists. Along Buckingham Way approaching 19<sup>th</sup> Avenue, the bicycle lanes that would be provided would make space for bicyclists to enter the intersection without conflicting with vehicular traffic. Along Portola Drive, a combination of bicycle lanes and “sharrows” would be established between O’Shaughnessy Boulevard and Sloat Boulevard. Along John Muir Drive, bicycle lanes would be provided in both the northbound and southbound directions between Lake Merced Boulevard and Skyline Drive, with no changes to the street capacities. Additional long-term improvements are also under consideration throughout the study area.

#### **Tier 4A**

As part of the improvements included in Tier 4A, enhanced pedestrian facilities are proposed at the intersections of 19<sup>th</sup> Avenue / Holloway Avenue, 19<sup>th</sup> Avenue / Crespi Drive, Junipero Serra Boulevard / 19<sup>th</sup> Avenue, Junipero Serra Boulevard / Chumasero Drive, Junipero Serra Boulevard / Brotherhood Way, Brotherhood Way / Chumasero Drive, Lake Merced Boulevard / Brotherhood Way, and Lake Merced Boulevard / Gonzalez Drive, Higuera Avenue, Acevedo Avenue, and Vidal Drive.

As described in Section III.C, numerous updates to the pedestrian network, such as improvements to crosswalks, additional bulb-outs, reconfigurations of sidewalks to shorten crossing distances, and the addition of stop signs on channelized right turns, are included in Tier 4A. Each improvement would be designed to improve upon the existing and Tier 2 facilities and to facilitate pedestrian activities.

Specifically, at the identified conflict locations, crossing conditions at the 19<sup>th</sup> Avenue / Holloway Avenue intersection would be greatly improved. Crosswalks would be reconfigured along the north side and south side of the intersection, bulb-outs would be installed at corners, and the radius of the northeast and southeast corners would be modified to reduce crossing distances and increase the size of pedestrian waiting areas. Given that this intersection is already heavily used by pedestrians and is expected to accommodate increased activity with the future background growth and development projects, these improvements would help improve pedestrian conditions and address existing issues.

In addition, Tier 4A includes new pedestrian crossings of 19<sup>th</sup> Avenue (at Crespi Drive), Junipero Serra Boulevard (at 19<sup>th</sup> Avenue and at Chumasero Drive), Brotherhood Way (at Chumasero Drive), and Lake Merced Boulevard (at Gonzalez Drive, Acevedo Avenue, and Vidal Drive). These additional access points would facilitate pedestrian and bicycle crossings into and out of Parkmerced and help reduce the potential pedestrian overcrowded conditions at the existing crosswalk locations that were identified under Tier 2.

## Tier 4B

As part of the improvements included in Tier 4B, enhanced pedestrian facilities are proposed at the intersections of 19<sup>th</sup> Avenue / Holloway Avenue, 19<sup>th</sup> Avenue / Crespi Drive, Junipero Serra Boulevard / 19<sup>th</sup> Avenue, Junipero Serra Boulevard / Chumasero Drive, Junipero Serra Boulevard / Brotherhood Way, Brotherhood Way / Chumasero Drive, Lake Merced Boulevard / Brotherhood Way, and Lake Merced Boulevard / Gonzalez Drive, Higuera Avenue, Acevedo Avenue, and Vidal Drive. In addition, Tier 4B includes the relocation of the SFSU M Ocean View station from the 19<sup>th</sup> Avenue median to inside the Parkmerced neighborhood.

The proposed relocation of the SFSU station is anticipated to substantially enhance pedestrian conditions at the 19<sup>th</sup> Avenue / Holloway Avenue intersection. Currently, the vast majority of the M Ocean View riders at this station are destined to and from the west side of 19<sup>th</sup> Avenue (in particular, SFSU and Parkmerced). The volume of pedestrians would greatly increase in the future, with the proposed development projects at these two sites.

As previously discussed, pedestrian conditions at the current SFSU station are constrained as a result of the high volume of riders and the limited pedestrian facilities at the platform. In addition, riders need to cross half of 19<sup>th</sup> Avenue, which has limited pedestrian green times. By relocating the station to the southwest corner of the intersection, these riders would no longer have to cross 19<sup>th</sup> Avenue, and a larger station area would be provided. As a result, pedestrian conditions would be noticeably improved. It should be noted, however, that riders who are destined to points east of 19<sup>th</sup> Avenue would need to cross the entire width of 19<sup>th</sup> Avenue, which would somewhat increase their walking distance and exposure to potential conflicts.

In addition, Tier 4B includes the provision for a new station for the J Church extension in the median of 19<sup>th</sup> Avenue to the south of Holloway Avenue. As discussed earlier, ridership at this station would be relatively low (much lower than at the M Ocean View station); as such, the current issues associated with light rail stations in the 19<sup>th</sup> Avenue median would be minimized. However, transfer between the two lines would require pedestrians crossing the south crosswalk of 19<sup>th</sup> Avenue between the median and the relocated SFSU station, which would be an inconvenience to riders and would result in the potential for conflicts for pedestrians trying to walk between the two lines.

As described in Section III.C, numerous updates to the pedestrian network, such as improvements to crosswalks, additional bulb-outs, reconfigurations of sidewalks to shorten crossing distances, and the addition of stop signs on channelized right turns, are included in Tier 4B. Each improvement would be designed to improve upon the existing and Tier 2 facilities and to facilitate pedestrian activities.

Specifically, at the identified conflict locations, crossing conditions at the 19<sup>th</sup> Avenue / Holloway Avenue intersection would be improved. Crosswalks would be reconfigured along the north side

and south side of the intersection, bulb-outs would be installed at corners, and the radius of the northeast and southeast corners would be modified to reduce crossing distances and increase the size of pedestrian waiting areas. Given that this intersection is already heavily used by pedestrians and is expected to accommodate increased activity with the future background growth and development projects, these improvements would help improve pedestrian conditions.

In addition, Tier 4B includes new pedestrian crossings of 19<sup>th</sup> Avenue (at Crespi Drive), Junipero Serra Boulevard (at 19<sup>th</sup> Avenue and at Chumasero Drive), Brotherhood Way (at Chumasero Drive), and Lake Merced Boulevard (at Gonzalez Drive, Acevedo Avenue, and Vidal Drive). These additional access points would facilitate pedestrian and bicycle crossings into and out of Parkmerced and help reduce the potential pedestrian overcrowded conditions at the existing crosswalk locations that were identified under Tier 2.

It should be noted that to allow the M Ocean View to cross into the Parkmerced neighborhood at the intersection of 19<sup>th</sup> Avenue / Holloway Avenue, the cycle length of the traffic signal would need to be lengthened to accommodate the 26-second all-red phase. As a result of this increased cycle length, pedestrians and bicyclists crossing in both the northbound/southbound and eastbound/westbound directions may need to wait longer until the appropriate green signal phase starts.

#### **Tier 4C**

As part of the improvements included in Tier 4C, enhanced pedestrian facilities are proposed at the intersections of 19<sup>th</sup> Avenue / Holloway Avenue, 19<sup>th</sup> Avenue / Crespi Drive, Junipero Serra Boulevard / 19<sup>th</sup> Avenue, Junipero Serra Boulevard / Chumasero Drive, Junipero Serra Boulevard / Brotherhood Way, Brotherhood Way / Chumasero Drive, Lake Merced Boulevard / Brotherhood Way, and Lake Merced Boulevard / Gonzalez Drive, Higuera Avenue, Acevedo Avenue, and Vidal Drive. In addition, Tier 4C includes the relocation of the SFSU M Ocean View station from the 19<sup>th</sup> Avenue median to inside the Parkmerced neighborhood.

The proposed relocation of the SFSU station is anticipated to substantially enhance pedestrian conditions at the 19<sup>th</sup> Avenue / Holloway Avenue intersection. Currently, the vast majority of the M Ocean View riders at this station are destined to and from the west side of 19<sup>th</sup> Avenue (in particular, SFSU and Parkmerced). The volume of pedestrians would greatly increase in the future, with the proposed development projects at these two sites.

As previously discussed, pedestrian conditions at the current SFSU station are constrained as a result of the high volume of riders and the limited pedestrian facilities at the platform. In addition, riders need to cross half of 19<sup>th</sup> Avenue, which has limited pedestrian green times. By relocating the station to the southwest corner of the intersection, these riders would no longer have to cross 19<sup>th</sup> Avenue, and a more robust station area would be provided. As a result, pedestrian conditions would be noticeably improved. However, it should be noted that riders who



are destined to points east of 19<sup>th</sup> Avenue would need to cross the entire width of 19<sup>th</sup> Avenue, which would somewhat increase their walking distance and exposure to potential conflicts. The number of riders facing this situation would represent a low percentage of the total number of riders at this station, however.

As described in Section III.3, numerous updates to the pedestrian network, including improvements to crosswalks, additional bulb-outs, reconfigurations of sidewalks to shorten crossing distances, and the addition of stop signs on channelized right turns, are included in Tier 4C. Each improvement would be designed to improve upon the existing and Tier 2 facilities and to facilitate pedestrian activities.

Specifically, at the identified conflict locations, crossing conditions at the 19<sup>th</sup> Avenue / Holloway Avenue intersection would be greatly improved. Crosswalks would be reconfigured along the north side and south side of the intersection, bulb-outs would be installed at corners, and the radius of the northeast and southeast corners would be modified to reduce crossing distances and increase the size of pedestrian waiting areas. Given that this intersection is already heavily used by pedestrians and is expected to accommodate increased activity with the future background growth and development projects, these improvements would help improve pedestrian conditions.

In addition, Tier 4C includes new pedestrian crossings of 19<sup>th</sup> Avenue (at Crespi Drive), Junipero Serra Boulevard (at 19<sup>th</sup> Avenue and at Chumasero Drive), Brotherhood Way (at Chumasero Drive), and Lake Merced Boulevard (at Gonzalez Drive, Acevedo Avenue, and Vidal Drive). These additional access points would facilitate pedestrian and bicycle crossings into and out of Parkmerced and help reduce the potential pedestrian overcrowded conditions at the existing crosswalk locations that were identified under Tier 2.

It should be noted that to allow the M Ocean View to cross into the Parkmerced neighborhood at the intersection of 19<sup>th</sup> Avenue / Holloway Avenue and the intersection of Junipero Serra Boulevard / 19<sup>th</sup> Avenue, the cycle length of the traffic signal would need to be lengthened to accommodate the 26-second all-red phase. As a result of this increased cycle length, pedestrians and bicyclists crossing in both the northbound/southbound and eastbound/westbound directions may need to wait a longer duration until the appropriate green signal phase starts.

## **PARKING ANALYSIS**

### **Tier 3**

In general, the transportation network changes associated with the public projects in Tier 3 would not substantially affect parking conditions throughout the study area. However, the provision of new bike lanes as part of the San Francisco Bicycle Plan may result in the removal of on-street parking at certain locations. For instance, the bicycle lanes to be provided along Holloway Avenue between Varela Avenue and Junipero Serra Boulevard would likely require the

elimination of on-street parking along both eastbound and westbound Holloway Avenue. Similarly, the bicycle lanes to be provided along Sagamore Street and Sickles Avenue would also require either the removal of parking or the narrowing of travel lanes, and the bicycle lanes to be provided on Buckingham Way approaching 19<sup>th</sup> Avenue and on John Muir Drive will require the removal of on-street parking. In addition, implementation of the traffic calming improvements on Holloway Avenue and Garfield Avenue east of Junipero Serra Boulevard may necessitate the removal of some on-street parking spaces. Overall, parking occupancy throughout the study area would not be noticeably changed; however, there may be minor effects in the nearby vicinity of one of these projects.

#### **Tier 4A**

As part of the proposed Tier 4A improvements, some on-street parking along Holloway Avenue, 19<sup>th</sup> Avenue, Junipero Serra Boulevard, and Lake Merced Boulevard may need to be modified to accommodate the planned sidewalk improvements, intersection reconfigurations, and new access points. No substantial change in the provision of on-street parking spaces is anticipated as compared to Tier 2 conditions. In general, a nominal number of on-street parking spaces would likely be eliminated at each location where Tier 4A improvements are proposed. Overall, these changes would not noticeably change parking conditions throughout the study area and would have a minor effect on parking conditions in the immediate vicinity of the planned improvements.

#### **Tier 4B**

As part of the proposed Tier 4B improvements, some on-street parking along Holloway Avenue, 19<sup>th</sup> Avenue, Junipero Serra Boulevard, and Lake Merced Boulevard may need to be modified to accommodate the planned sidewalk improvements, intersection reconfigurations, and new access points. The addition of the M Ocean View realignment into Parkmerced and the associated extension of the J Church line along 19<sup>th</sup> Avenue would not affect on-street parking. No substantial change in the provision of on-street parking spaces is anticipated as compared to Tier 2 conditions. In general, a nominal number of on-street parking spaces would likely be eliminated at each location where Tier 4B improvements are proposed. Overall, these changes would not noticeably change parking conditions throughout the study area and would have a minor effect on parking conditions in the immediate vicinity of the planned improvements.

#### **Tier 4C**

As part of the proposed Tier 4C improvements, some on-street parking along Holloway Avenue, 19<sup>th</sup> Avenue, Junipero Serra Boulevard, and Lake Merced Boulevard may need to be modified to accommodate the planned sidewalk improvements, intersection reconfigurations, and new access points. The addition of the M Ocean View realignment into and out of Parkmerced would not affect on-street parking. No substantial change in the provision of on-street parking spaces is anticipated as compared to Tier 2 conditions. In general, a nominal number of on-street parking

spaces would likely be eliminated at each location where Tier 4C improvements are proposed. Overall, these changes would not noticeably change parking conditions throughout the study area and would have a minor effect on parking conditions in the immediate vicinity of the planned improvements.

### **HIGH-OCCUPANCY/TOLL LANE VARIANT**

This section summarizes the results of the intersection, transit, pedestrian, bicycle, and parking analysis for the HOT Lane Variant conditions. For this evaluation, it was assumed that a new fourth southbound travel lane would be provided along 19<sup>th</sup> Avenue from north of Holloway Avenue through Junipero Serra Boulevard that would be dedicated to transit vehicles (including shuttles), carpool vehicles, and regular private automobiles that pay a user fee. North of Crespi Drive, the HOT lane would be available to transit vehicles only, plus vehicles making the right turn into Crespi Drive would also be allowed. (Carpool vehicles and private automobiles that pay user fees would not have access to the lane on this segment). South of Crespi Drive, transit vehicles, carpool vehicles, and private automobiles that pay a user fee would be able to use the HOT lane. The price of the user fee and the restrictions on carpool vehicles (whether two persons per vehicle or three persons per vehicle) would be set to limit the number of vehicles to ensure free-flow conditions.

For Tier 4A, this additional lane would necessitate the elimination of on-street parking along the west curb of 19<sup>th</sup> Avenue and geometric changes at the intersections of 19<sup>th</sup> Avenue / Holloway Avenue, 19<sup>th</sup> Avenue / Crespi Avenue and Junipero Serra Boulevard / 19<sup>th</sup> Avenue. Since Tier 4B already includes an additional southbound travel lane between Holloway Avenue and Crespi Drive, this lane would be converted into the HOT lane, and the additional lane south of Crespi Drive would necessitate the elimination of on-street parking along the west curb of 19<sup>th</sup> Avenue and geometric changes at the intersection of Junipero Serra Boulevard / 19<sup>th</sup> Avenue. Since Tier 4C already includes an additional southbound travel lane, the lane was simply converted into the HOT lane for this analysis.

### **Intersection Analysis**

To determine any impacts associated with the implementation of a fourth southbound 19<sup>th</sup> Avenue HOT lane from Holloway Avenue to Junipero Serra Boulevard, the southbound approach for each of the following three study area intersections was modified to include the HOT lane:

7. Junipero Serra Boulevard / 19<sup>th</sup> Avenue;
16. 19<sup>th</sup> Avenue / Holloway Avenue; and
17. 19<sup>th</sup> Avenue / Crespi Drive.

At the intersection of 19<sup>th</sup> Avenue / Holloway Avenue, the HOT lane would accommodate the transit vehicles plus private vehicles destined to make a right turn at Crespi Drive. (These right-turn vehicles were added to the lane due to the closely spaced intersections of 19<sup>th</sup> Avenue /



Holloway Avenue and 19<sup>th</sup> Avenue / Crespi Drive and the required merge distances.) At the intersection of 19<sup>th</sup> Avenue / Crespi Drive, the HOT lane would also include the transit vehicles (at the through movement) and the private vehicles destined to Crespi Drive (at the right-turn movement).

At these two intersections, the potential volumes that would use the HOT lane were developed using the TEP number of transit vehicles along that segment of 19<sup>th</sup> Avenue as a base (see the Tier 3 discussion). Southbound route and headway information for the 28 19<sup>th</sup> Avenue and 28L 19<sup>th</sup> Avenue Limited showed that approximately 13 transit trips would pass through each of the three intersections during weekday AM peak hour and 9 transit trips would pass through each of the three intersections during the weekday PM peak hour. The private vehicles making a right turn to Crespi Drive during the weekday AM and PM peak hours for each tier were obtained from the intersection analysis, as documented in Section III.E.

South of Crespi Drive, the HOT lane would still include the transit vehicles and would add carpool vehicles and private through vehicles that wish to pay the toll. To estimate the number of carpool vehicles and private vehicles in the HOT lane, a review of the HOT lane operations was conducted at the intersection of Junipero Serra Boulevard / 19<sup>th</sup> Avenue for each tier. At this location, the HOT lane was modeled individually, and traffic volumes were incrementally increased until the lane was determined to operate at LOS B conditions. (These conditions would ensure that the HOT lane would have a significant travel time advantage as compared to the regular traffic lane, and that congested conditions and queues would be avoided.) These HOT lane vehicles were then subtracted from the southbound through traffic volumes for the three regular travel lanes. Overall, it was determined that approximately 17 percent of the southbound through volumes at the intersection would use the HOT lane. As such, of the approximately 3,500 southbound vehicles at this approach, approximately 600 vehicles would be expected to use the HOT lane. As such, the HOT lane would need to have a user fee and the carpool restrictions set to limit the number of vehicles to this amount.

To determine the overall LOS of the HOT lane configuration at each intersection, two sets of analyses were performed. The first set evaluated the operating conditions of just the HOT lane. The second set of analyses evaluated the operating conditions of the three southbound mixed-flow lanes with the volume of the HOT lane subtracted out of the total southbound approach volumes. A comparison of the two sets of analyses was conducted to develop a weighted average of the HOT lane LOS and the southbound mixed-flow LOS. The resulting LOS was then applied to the southbound approach at each intersection to obtain the overall LOS of the HOT Lane Variant configuration.

### Tier 4A

The Tier 4A HOT Lane Variant conditions include all the assumptions of Tier 4A with the exception of the following HOT lane features:

- Addition of a southbound through lane at 19<sup>th</sup> Avenue / Holloway Avenue, designated for transit vehicles and vehicles turning right to Crespi Drive;
- Conversion of the existing southbound through-right lane into a through lane, and the addition of a southbound through-right lane at 19<sup>th</sup> Avenue / Crespi Drive, designated for transit vehicles and vehicles turning right to Crespi Drive; and
- Addition of fourth southbound lane at Junipero Serra Boulevard / 19<sup>th</sup> Avenue, designed for transit vehicles, carpool vehicles, and vehicles paying the user toll, and relocation of the southbound 19<sup>th</sup> Avenue through lane (which continues to southbound 19<sup>th</sup> Avenue through the intersection) to a lane shared with the southbound Muni Metro light rail tracks.

A comparison of the Tier 4A and Tier 4A HOT Lane Variant conditions intersection LOS is summarized in **Table III.31**. Detailed LOS calculations are provided in **Appendix D**.

As shown in **Table III.31**, conditions at all three intersections would improve with the HOT lane. The addition of the southbound through lane designated for transit/right-turning vehicles and carpool vehicles/toll vehicles would noticeably improve the intersection operating conditions at all three intersections, as it would provide additional vehicular capacity. At all three intersections, the HOT lane is projected to operate at LOS A or LOS B conditions during both analysis time periods.

**Table III.31: Intersection Level of Service – Tier 4A HOT Lane Variant (Weekday Peak Hours)**

	Intersection	Peak Hour	Tier 4A		Tier 4A HOT	
			LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>
7	Junipero Serra Blvd. / 19 <sup>th</sup> Ave.	AM	E	68.8	D	54.3
		PM	F	>80 / 1.26	E	70.1
16	19 <sup>th</sup> Ave. / Holloway Ave.	AM	E	57.9	D	40.2
		PM	F	>80 / 1.06	E	68.2
17	19 <sup>th</sup> Ave. / Crespi Dr.	AM	E	75.7	E	61.5
		PM	E	74.7	E	60.7

Notes:

**Bold** indicates intersection operating at unacceptable level of service (LOS).

<sup>1</sup> Delay presented in seconds per vehicle. For intersections that operate at LOS F, the delay per vehicle and volume-to-capacity (V/C) ratio are presented.

Source: AECOM, 2009.

Furthermore, during the weekday AM peak hour under the Tier 4A HOT Lane Variant conditions, the following two intersections would improve to acceptable conditions (from LOS E or F to LOS D or better) when compared to Tier 4A conditions:

- 7. Junipero Serra Boulevard / 19<sup>th</sup> Avenue (LOS E to LOS D); and
- 16. 19<sup>th</sup> Avenue / Holloway Avenue (LOS E to LOS D).

#### Tier 4B

Tier 4B HOT Lane Variant conditions include all the assumptions of Tier 4B with the exception of the following HOT lane features:

- Conversion of the proposed additional fourth southbound through lane at 19<sup>th</sup> Avenue / Holloway Avenue to a HOT lane designated for transit vehicles and vehicles turning right to Crespi Drive;
- Conversion of the proposed additional southbound exclusive right-turn lane at 19<sup>th</sup> Avenue / Crespi Drive to a shared through-right-turn lane, designated for transit vehicles and vehicles turning right to Crespi Drive; and
- Addition of fourth southbound lane at Junipero Serra Boulevard / 19<sup>th</sup> Avenue, designed for transit vehicles, carpool vehicles, and vehicles paying the user toll, and relocation of the southbound 19<sup>th</sup> Avenue through lane (which continues to southbound 19<sup>th</sup> Avenue through the intersection) to a lane shared with the southbound Muni Metro light rail tracks.

A comparison of Tier 4B and Tier 4B HOT Lane Variant conditions intersection LOS is summarized in **Table III.32**. Detailed LOS calculations are provided in **Appendix E**.

As shown in **Table III.32**, conditions at two of the intersections (Junipero Serra Boulevard / 19<sup>th</sup> Avenue and 19<sup>th</sup> Avenue / Crespi Drive) would improve with the HOT lane. At all three intersections, the HOT lane is projected to operate a LOS A or LOS B conditions during both analysis periods.

**Table III.32: Intersection Level of Service – Tier 4B HOT Lane Variant (Weekday Peak Hours)**

Intersection		Peak Hour	Tier 4B		Tier 4B HOT	
			LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>
7	Junipero Serra Blvd. / 19 <sup>th</sup> Ave.	AM	E	69.1	D	54.5
		PM	F	>80 / 1.08	E	70.1
16	19 <sup>th</sup> Ave. / Holloway Ave.	AM	E	62.2	E	67.2
		PM	F	>80 / 0.93	F	>80 / 0.93
17	19 <sup>th</sup> Ave. / Crespi Dr.	AM	E	75.7	E	61.5
		PM	E	74.7	E	60.7

Notes:

**Bold** indicates intersection operating at unacceptable level of service (LOS).

<sup>1</sup> Delay presented in seconds per vehicle. For intersections that operate at LOS F, the delay per vehicle and volume-to-capacity (V/C) ratio are presented.

Source: AECOM, 2009.

Under Tier 4B, the intersection of 19<sup>th</sup> Avenue / Holloway Avenue already included the provision of a fourth southbound through lane. With this lane converted into a HOT lane, the number of



vehicles in the lane would decrease, thereby increasing the number of vehicles (and the associated delay) in the regular traffic lanes. Under Tier 4B, the intersection of 19<sup>th</sup> Avenue / Crespi Drive already included the provision of a fourth southbound right-turn lane. By converting this to a through lane, conditions would marginally improve. At the intersection of Junipero Serra Boulevard / 19<sup>th</sup> Avenue, the addition of the southbound through lane designated for transit, carpool vehicles, and toll vehicles would noticeably improve the intersection operating conditions, as it would provide additional vehicular capacity.

Furthermore, during the weekday AM peak hour under Tier 4B HOT Lane Variant conditions, the following intersection would improve to acceptable conditions (from LOS E or F to LOS D or better) when compared to Tier 4B conditions:

7. Junipero Serra Boulevard / 19<sup>th</sup> Avenue (LOS E to LOS D).

#### **Tier 4C**

Tier 4C HOT Lane Variant conditions include all the assumptions of Tier 4C with the exception of the following HOT lane variant features:

- Conversion of the proposed additional fourth southbound through lane at 19<sup>th</sup> Avenue / Holloway Avenue to a HOT lane designated for transit vehicles and vehicles turning right to Crespi Drive;
- Conversion of the proposed additional southbound through-right-turn lane at 19<sup>th</sup> Avenue / Crespi Drive to a HOT lane designated for transit vehicles and vehicles turning right to Crespi Drive; and
- Conversion of the proposed additional fourth southbound right-turn lane at Junipero Serra Boulevard / 19<sup>th</sup> Avenue into a HOT lane designated for transit vehicles, carpool vehicles, and vehicles paying the user toll.

A comparison of Tier 4C and Tier 4C HOT Lane Variant conditions intersection LOS is summarized in **Table III.33**. Detailed LOS calculations are provided in **Appendix F**.

As shown in **Table III.33**, during the Tier 4C HOT Lane Variant weekday AM and PM peak hour conditions, none of the three intersections would improve to acceptable conditions (from LOS E or F to LOS D or better) when compared to Tier 4C conditions. At all three intersections, the HOT lane is projected to operate at LOS A or LOS B conditions during both analysis periods.

The conversion of the fourth southbound lane at all three intersections into the HOT lane (designated for transit/right-turning vehicles, carpool vehicles, and toll vehicles) would slightly worsen intersection operating conditions. Although the HOT lane is expected to operate at LOS A or LOS B, overall intersection conditions would slightly worsen. With the proposed fourth additional southbound lane converted into a HOT lane, the number of vehicles in the lane would decrease, thereby increasing the number of vehicles (and the associated delay) in the regular traffic lanes, primarily due to the reduction in capacity of one through lane.

**Table III.33: Intersection Level of Service – Tier 4C HOT Lane Variant (Weekday Peak Hours)**

	Intersection	Peak Hour	Tier 4C		Tier 4C HOT	
			LOS	Delay or V/C <sup>1</sup>	LOS	Delay or V/C <sup>1</sup>
7	Junipero Serra Blvd. / 19 <sup>th</sup> Ave.	AM	E	57.4	E	66.6
		PM	F	>80 / 0.87	F	>80 / 0.87
16	19 <sup>th</sup> Ave. / Holloway Ave.	AM	E	61.5	F	>80 / 0.78
		PM	F	>80 / 0.88	F	>80 / 0.88
17	19 <sup>th</sup> Ave. / Crespi Dr.	AM	E	74.1	F	>80 / 0.64
		PM	F	>80 / 0.76	F	>80 / 0.76

Notes:

**Bold** indicates intersection operating at unacceptable level of service (LOS).

<sup>1</sup> Delay presented in seconds per vehicle. For intersections that operate at LOS F, the delay per vehicle and volume-to-capacity (V/C) ratio are presented.

Source: AECOM, 2009.

### Transit Analysis

The provision of a HOT lane along southbound 19<sup>th</sup> Avenue would improve operations and service reliability for the 28 19<sup>th</sup> Avenue and 28L 19<sup>th</sup> Avenue Limited bus lines. By providing a travel lane that has a limited number of regular vehicles, delays and congestion levels can be managed, which would result in enhanced conditions for transit vehicles. With the proposed configuration and operating plan for the HOT lane, buses heading in the southbound direction at the 19<sup>th</sup> Avenue / Holloway Avenue, 19<sup>th</sup> Avenue / Crespi Drive, and Junipero Serra Boulevard / 19<sup>th</sup> Avenue intersections would encounter minimal queues and wait times. However, the HOT lane would not improve conditions for the 29 Sunset bus line, as this route would not operate within the limits of the HOT lane, and would not affect conditions of the M Ocean View light rail line. To determine the effect of the HOT lane on operations of the 28 19<sup>th</sup> Avenue and 28L 19<sup>th</sup> Avenue Limited southbound, the travel times for the HOT Lane Variant were compared to the base scenario for Tier 4A, Tier 4B, and Tier 4C.

As shown in **Table III.34**, the addition of a HOT lane on a portion of southbound 19<sup>th</sup> Avenue is expected to substantially benefit Muni bus services traveling on this section. Under Tier 4A, travel times for the HOT Lane Variant would be 2 to 4 minutes shorter than with the original roadway configuration. Under Tier 4B, travel times for the HOT Lane Variant would be about 2 to 3 minutes shorter than with the original configuration. (This reduction would be less than with Tier 4A HOT Lane Variant, as Tier 4B already includes improvements along the southbound 19<sup>th</sup> Avenue at the 19<sup>th</sup> Avenue / Holloway Avenue and 19<sup>th</sup> Avenue / Crespi Drive intersections.) Under Tier 4C, travel times for the HOT Lane Variant would be approximately 1 minute shorter than with the original configuration. The Tier 4C HOT Lane Variant would have only a modest improvement as compared to Tier 4C, since Tier 4C already included an additional southbound 19<sup>th</sup> Avenue travel lane.

**Table III.34: Muni Travel Time Increases – HOT Lane Variant**

Route	Peak Hour	Transit Travel Time Increases (m:ss)					
		Tier 4A	Tier 4A HOT	Tier 4B	Tier 4B HOT	Tier 4C	Tier 4C HOT
28 19 <sup>th</sup> Avenue / 28L 19 <sup>th</sup> Avenue Limited							
SB	AM	3:30	1:10	2:50	1:10	2:00	1:20
	PM	6:30	1:50	4:40	1:40	3:20	2:00

*Notes:*

All increases relative to existing travel time.

m:ss = minutes and seconds.

*Source:* AECOM, 2009.

In addition, due to the available right-of-way width of the southbound 19<sup>th</sup> Avenue approach to Junipero Serra Boulevard, it would not be possible to provide a fourth southbound right-turn lane (to become the HOT lane) for Tier 4A and Tier 4B. In order to fit this lane, the southbound through lane (which continues on to southbound 19<sup>th</sup> Avenue) would need to be relocated to share a lane with the southbound light rail tracks. This would be a similar configuration as the existing northbound left-turn movement at the 19<sup>th</sup> Avenue / Winston Drive intersection. Since the southbound 19<sup>th</sup> Avenue through movement has relatively low traffic volumes through the day and during peak hours, and since the light rail travels during the same signal phase, this modification would not substantially degrade light rail operations for Tier 4A HOT Lane Variant and Tier 4B HOT Lane Variant.<sup>7</sup>

### **Bicycle and Pedestrian Analysis**

At the locations where a new fourth southbound travel lane would need to be established to provide the HOT lane (at 19<sup>th</sup> Avenue / Holloway Avenue, 19<sup>th</sup> Avenue / Crespi Drive, and Junipero Serra Boulevard / 19<sup>th</sup> Avenue for Tier 4A, and at Junipero Serra Boulevard / 19<sup>th</sup> Avenue for Tier 4B), pedestrian conditions would be somewhat affected.

For the Tier 4A HOT Lane Variant and Tier 4B HOT Lane Variant, pedestrian circulation conditions at the intersections of 19<sup>th</sup> Avenue / Holloway Avenue and 19<sup>th</sup> Avenue / Crespi Drive would be similar to those described under Tier 4B, as adding a fourth southbound lane while maintaining the light rail median in the middle of 19<sup>th</sup> Avenue would limit the amount of pedestrian improvements that can be implemented. However, it would be feasible to establish a series of sidewalk bulbs and median refuge areas and widen crosswalks to improve conditions. Pedestrian circulation conditions at the intersection of Junipero Serra Boulevard / 19<sup>th</sup> Avenue would be similar to those described under Tier 4C. In addition, the elimination of on-street

<sup>7</sup> This configuration for the southbound 19<sup>th</sup> Avenue through movement was recommended by SFMTA staff. However, if this configuration is determined to be impractical or infeasible, it may be possible to instead eliminate the southbound through movement entirely (which would require vehicles to reroute to different streets to access this area).



parking along the west curb of 19<sup>th</sup> Avenue between Crespi Drive and Junipero Serra Boulevard could affect pedestrian conditions, as on-street parking typically acts as a “buffer” to help separate pedestrians from moving vehicles.

For the Tier 4C HOT Lane Variant, pedestrian circulation conditions at the intersections of 19<sup>th</sup> Avenue / Holloway Avenue, 19<sup>th</sup> Avenue / Crespi Drive, and Junipero Serra Boulevard / 19<sup>th</sup> Avenue would be similar to those described under Tier 4C.

In general, bicyclist conditions would not be substantially affected by the HOT lane, as it would not affect any existing or proposed future on-street bicycle facilities.

#### **Parking Analysis**

As noted above, it would be necessary to prohibit on-street parking along the west side of 19<sup>th</sup> Avenue to create the HOT lane (fourth southbound lane) for the Tier 4A HOT Lane Variant and Tier 4B HOT Lane Variant since both scenarios maintain the light rail median. Between the realigned Crespi Drive and Junipero Serra Boulevard, there are currently about 30 on-street parking spaces provided, all of which would be eliminated with the HOT Lane Variant. However, this reduction would be relatively minor in the context of the overall on-street parking supply in the study area.

For the Tier 4C HOT Lane Variant, parking conditions along 19<sup>th</sup> Avenue would be similar to those described under Tier 4C. Since the fourth southbound lane could be created by narrowing the former light rail median, on-street parking along the west side of 19<sup>th</sup> Avenue would not be affected by the HOT lane.

## F. ANALYSIS SUMMARY

This chapter summarizes the results of the Tier 3, Tier 4A, Tier 4B, and Tier 4C analyses for intersection, transit, pedestrian/bicycle, and parking conditions.

### INTERSECTION CONDITIONS

**Table III.35** presents the number of analysis intersections that currently operate with unacceptable conditions (LOS E or F) and the number that are projected to operate with unacceptable conditions under each of the future tiers.

**Table III.35: Summary of Intersections Operating at Unacceptable Levels of Service (LOS)**

Time Period	Existing	Tier 1	Tier 2	Tier 3	Tier 4A	Tier 4B	Tier 4C
Weekday AM Peak Hour	7	11	13	13	11	11	11
Weekday PM Peak Hour	11	15	20	20	19	19	19
Weekend Midday Peak Hour	3	5	6	6	6	6	7

Source: AECOM, 2009.

#### Tier 2

When compared to Tier 1 conditions, the vehicle trips generated by the foreseeable development projects would result in two additional intersections that would operate at LOS E or F during the weekday AM peak hour, five additional intersections that would operate at LOS E or F during the weekday PM peak hour, and one additional intersection that would operate at LOS E or F during the weekend midday peak hour.

#### Tier 3

When compared to Tier 2 conditions, the addition of the public improvements (Tier 3) would not result in any additional intersections that would operate at LOS E or F.

#### Tier 4A

When compared to Tier 2 conditions, the Tier 4A improvements would not result in any additional intersections that would operate at LOS E or F. In addition, two intersections would improve to acceptable conditions during the weekday AM peak hour and one intersection would improve to acceptable conditions during the weekday PM peak hour with the private improvements included in Tier 4A.

**Tier 4B**

When compared to Tier 2 conditions, the Tier 4B improvements would not result in any additional intersections that would operate at LOS E or F. In addition, two intersections would improve to acceptable conditions during the weekday AM peak hour and one intersection would improve to acceptable conditions during the weekday PM peak hour with the private improvements included in Tier 4B.

**Tier 4C**

When compared to Tier 2 conditions, the Tier 4C improvements would result in one additional intersection that would operate at LOS E or F during the weekend midday peak hour. In addition, two intersections would improve to acceptable conditions during the weekday AM peak hour and one intersection would improve to acceptable conditions during the weekday PM peak hour with the private improvements included in Tier 4C.

Overall, the effects of the proposed realignment of the M Ocean View light rail line and its corresponding requirement for all-red signal phases at 19<sup>th</sup> Avenue / Holloway Avenue (Tier 4B and Tier 4C) and Junipero Serra Boulevard / 19<sup>th</sup> Avenue (Tier 4C), would generally be alleviated by the proposed additional travel lanes at both locations.

**TRANSIT CONDITIONS**

**Table III.36** presents the number of analysis corridors and Muni bus and light rail lines that currently operate over capacity under Existing Conditions, as well as the number that are projected to operate over capacity under each of the future tiers (presented for the four screenlines: North, Northeast, East, and South).

Under Existing Conditions, all lines operate below capacity except for the 29 Sunset on the North screenline, inbound to the study area during the weekday PM peak hour. With the increase in ridership projected in Tier 1 and Tier 2, conditions on the 29 Sunset would worsen, expanding to both directions (inbound to the study area and outbound from the study area) and two screenlines (North and East) during the weekday PM peak hour. The 29 Sunset would also operate over capacity in the weekday AM peak hour under Tier 2, inbound to the study area on both the North and East screenlines. In addition, the 28 19<sup>th</sup> Avenue and M-Ocean View would also operate over capacity in multiple directions and time periods.

The rerouting of transit lines and changes to service levels by SFMTA as part of the TEP, as assessed in Tier 3, would improve most of the over-capacity conditions on the 29 Sunset, but would introduce additional over-capacity conditions for transit service in the 19<sup>th</sup> Avenue Corridor, particularly on the South screenline coming to and from Daly City BART station.



**Table III.36: Summary of Muni Lines Operating above Capacity**

Time Period	Existing	Tier 1	Tier 2	Tier 3	Tier 4A	Tier 4B	Tier 4C
<b>Weekday AM Peak Hour</b>							
Inbound	--	29 (N) 29 (E)	29 (N) 29 (E)	28 (S)	28 (S)	28 (S)	28 (S)
Outbound	--	--	28 (N)	M (NE)	M (NE)	M (NE)	M (NE)
<b>Weekday PM Peak Hour</b>							
Inbound	29 (N)	29 (N) 29 (E)	29 (N) M (NE) 29 (E)	29 (N) M (NE) 28 (S)	29 (N) M (NE) 28 (S)	29 (N) M (NE) 28 (S)	29 (N) M (NE) 28 (S)
Outbound	--	29 (N) 29 (E)	28 (N) 29 (N) 29 (E)	28L (N) 28 (S)	28L (N) 28 (S)	28L (N) 28 (S)	28L (N) 28 (S)

*Notes:*

Parentheses indicates screenline: N = North, NE = Northeast, E = East, S = South.

Source: AECOM, 2009.

The proposed changes to the M Ocean View and J Church lines in the Tier 4A, Tier 4B, and Tier 4C scenarios would not result in the addition or removal of over-capacity conditions above what occurs under Tier 3 with the TEP changes.

In addition, the transit run-time analysis indicates that the increased delay at intersections due to roadway congestion in Tier 1 and Tier 2 would have a minimal effect on the 29 Sunset's travel time through the study area, with increases of less than 2 minutes. Bus service in the 19<sup>th</sup> Avenue corridor on the 28 19<sup>th</sup> Avenue and 28L 19<sup>th</sup> Avenue Limited would encounter increases of between 3 and 8 minutes, depending on direction and peak hour, as a result of intersection delay under the Tier 1 and Tier 2 scenarios. In addition, light rail service on the M Ocean View in the study area would encounter a travel time increase of less than 2 minutes.

The public improvements, such as signal coordination along 19<sup>th</sup> Avenue under Tier 3, would slightly improve travel time through the study area on the 28 19<sup>th</sup> Avenue and 28L 19<sup>th</sup> Avenue Limited. Travel time on the 29 Sunset and M Ocean View would remain largely unchanged from the Tier 2 conditions. The proposed changes under Tier 4A, Tier 4B, and Tier 4C would have substantial effects on travel times for all three bus lines. In each Tier 4 scenario, the 28 19<sup>th</sup> Avenue and 28L 19<sup>th</sup> Avenue Limited would have reduced travel times as compared to Tier 2, due to the additional travel lanes provided at key intersections. For the 29 Sunset line, the various changes would have minimal effect on travel time, with only a maximum increase or decrease in travel time of approximately 30 seconds. However, travel times on the M Ocean View for Tier 4B and Tier 4C would increase due to the rerouting of the light rail through the Parkmerced neighborhood. These increases in delays due to traffic conditions would affect Muni service

reliability and operations, increasing the operating costs of the routes and reducing the quality of service to riders.

As assessed in Tier 4B and Tier 4C, the proposed relocation of the SFSU station into the Parkmerced neighborhood at the southwest corner of the 19<sup>th</sup> Avenue / Holloway Avenue intersection would improve rider access to the station and would address the outstanding station area and queuing area overcrowding conditions, as compared to Tier 3 and Tier 4A. However, since Tier 4B would also include the extension of the J Church with a new station at the south side of 19<sup>th</sup> Avenue / Holloway Avenue, passengers transferring between lines would be inconvenienced.

The rerouting of the M Ocean View line through Parkmerced in Tier 4C would result in an increase in total run times of about 5 percent in both the inbound and outbound directions, which would require the use of an additional train during some periods to meet the TEP's proposed service plan. Compared to the existing alignment in the median of 19<sup>th</sup> Avenue, an alignment through Parkmerced would increase travel times through the study area by approximately 1 to 2 minutes.

#### **PEDESTRIAN AND BICYCLE CONDITIONS**

The additional pedestrian activity within the study area was projected as part of Tier 1 and Tier 2. Overall, it is anticipated that, throughout most of the study area, there would be minor changes to pedestrian volumes and conditions that would not substantially change over existing conditions. However, in the vicinity of the proposed Stonestown, SFSU, and Parkmerced projects (as evaluated in Tier 2), there would be a substantial increase in pedestrians, primarily along 19<sup>th</sup> Avenue. This pedestrian activity would be due to people walking to and from these destinations, plus people walking to transit and parking. These additional pedestrians would exacerbate the current pedestrian problem locations, such as the intersections of 19<sup>th</sup> Avenue / Winston Drive and 19<sup>th</sup> Avenue / Holloway Avenue. The limited number of pedestrian connections to the Parkmerced neighborhood would cause additional access issues.

The proposed public improvements in Tier 3 would not address any of the existing and projected future pedestrian issues in the study area.

As part of the Tier 4A, Tier 4B, and Tier 4C scenarios, substantial enhancements to the pedestrian environment, such as wider and realigned crosswalks, corner bulbs and sidewalk extensions, and new crossing locations, would be included. Combined, these would help address the pedestrian conditions on streets around the Parkmerced neighborhood. Both Tiers 4B and 4C would include the relocation of the current M Ocean View station at 19<sup>th</sup> Avenue / Holloway Avenue into the Parkmerced neighborhood at the southwest corner of the intersection, which would improve the pedestrian experience at this intersection by reducing the walk distances and minimizing the crossing of 19<sup>th</sup> Avenue. However, since Tier 4B would require transfers between the M Ocean

View and the J Church lines (with a new station on the south side of the intersection) and additional crossings of 19th Avenue, riders would be inconvenienced.

It should be noted that since no improvements were assumed as part of the Stonestown and SFSU projects, problematic pedestrian locations would still exist north of Parkmerced.

Currently, there are several bicycle facilities within the study area, including signed bicycle routes and on-street bicycle lanes. There are low to moderate levels of bicycle activity in the study area, except near major destinations and the schools/institutions (in particular, SFSU). Overall, bicycle conditions are generally acceptable throughout the day and during peak hours. With the increase in development projected as part of the Tier 1 and Tier 2 conditions, there would be a commensurate increase in bicycle activity.

The San Francisco Bicycle Plan, addressed as part of Tier 3, includes several new short-term bicycle facilities in the study area, including along Buckingham Way, 19<sup>th</sup> Avenue, Holloway Avenue, Portola Drive, John Muir Drive, and Sagamore Street / Sickles Avenue. These new lanes would help address existing gaps in the bicycle network and serve to improve overall bicycle conditions.

No new or modified bicycle facilities were included in Tier 4A, Tier 4B, or Tier 4C. In general, the proposed intersection modifications within these tiers would not substantially affect bicycle conditions or conflict with implementation of the short-term projects.

## **PARKING CONDITIONS**

On-street parking, including time-limited unmetered spaces and metered spaces, is currently provided throughout the study area. In addition, off-street parking is provided for the major destinations in the area, such as Lakeshore Plaza and SFSU. The on-street parking is generally well-used throughout the day and evening periods, with some pockets of higher demand.

With the growth in development in the area, as assessed in Tier 1 and Tier 2, there would be an increase in parking demand, primarily focused near Stonestown, SFSU, and Parkmerced. Although the future parking supply at these locations is not currently known, it is likely that both SFSU and Parkmerced would have a substantial parking shortfall. (It is anticipated that the Stonestown Galleria would continue to supply sufficient parking to accommodate its typical daily parking demand.) As a result, the unmet parking demand in the area would tend to spill over in the adjacent residential neighborhoods, exacerbating any current parking problems.

In general, parking conditions under Tier 3, Tier 4A, Tier 4B, and Tier 4C would be similar to those under Tier 2. The proposed improvements to roadways, pedestrian facilities, bicycle facilities, and transit facilities would result in the minor elimination of on-street parking spaces (e.g., along Holloway Avenue to accommodate the planned new bicycle lanes). As a result,



parking conditions in these areas would be somewhat worse than under Tier 2. However, parking conditions throughout the remainder of the study area would not substantially change from those determined for Tier 2.

#### **HOT LANE VARIANT**

A variant configuration for Tier 4A, Tier 4B, and Tier 4C that included the provision of a High-Occupancy/Toll (HOT) lane along southbound 19<sup>th</sup> Avenue from north of Holloway Avenue through Junipero Serra Boulevard was analyzed. North of Crespi Drive, this lane would be restricted to transit vehicles and private vehicles making a right turn into Crespi Drive; south of Crespi Drive, the lane would be restricted to transit vehicles, carpool vehicles, and private vehicles wishing to pay a toll. Carpool vehicle restrictions and the user fee for private vehicles would be set to limit the number of vehicles in the HOT lane and maintain free-flow travel.

In general, intersection operating conditions would be improved at the study intersections that would be affected by the HOT lane: 19<sup>th</sup> Avenue / Holloway Avenue, 19<sup>th</sup> Avenue / Crespi Drive, and Junipero Serra Boulevard / 19<sup>th</sup> Avenue. The largest benefit would be for the Tier 4A HOT Lane Variant scenario, as the HOT lane would result in an overall increase in capacity in the southbound direction. Since Tier 4B already includes an additional lane at the intersections of 19<sup>th</sup> Avenue / Holloway Avenue and 19<sup>th</sup> Avenue / Crespi Drive, the Tier 4B HOT Lane Variant scenario would have lesser improvement. Similarly, since Tier 4C already includes an additional lane at all three intersections, the Tier 4C HOT Lane Variant scenario would have worse intersection operating conditions. Note that for each scenario, the HOT lane itself would operate with free-flow conditions.

The HOT lane would also decrease delays for the 28 19<sup>th</sup> Avenue and 28L 19<sup>th</sup> Avenue Limited bus lines in the southbound direction, which would improve operating speeds and improve service reliability.

Provision of a fourth southbound lane for the HOT lane would not substantially affect pedestrian and bicyclist conditions, although the restriction of on-street parking along the west side of the street for Tier 4A and Tier 4B under the HOT Lane Variant would remove the buffer for pedestrians.

In addition, the restriction of on-street parking along the west side of 19<sup>th</sup> Avenue for Tier 4A and Tier 4B under the HOT Lane Variant would result in the elimination of about 30 on-street parking spaces.



## **IV. REPORT AUTHORS**

---

### **19<sup>th</sup> AVENUE CORRIDOR STUDY AUTHORS**

Planning Department, City and County of San Francisco  
1650 Mission Street  
San Francisco, CA 94103

Environmental Review Officer:	Bill Wycko
Senior Environmental Planner:	Rick Cooper
Transportation Planner:	Greg Riessen

San Francisco Municipal Transportation Agency (SFMTA)  
1 South Van Ness Avenue  
San Francisco, CA 94103

Peter Albert  
Peter Straus  
Julie Kirschbaum  
Jack Fleck

### **19<sup>th</sup> AVENUE CORRIDOR STUDY CONSULTANTS**

AECOM  
2101 Webster Street, Suite 1900  
Oakland, CA 94612

Department Manager:	Tim Erney, AICP/PTP
Senior Transportation Planner:	Jeffrey Chan, PTP
Transportation Planner:	Michael Arizabal
Transportation Planner:	Ryan Niblock
Transportation Planner:	Anthony Mangonon

Turnstone Consulting  
330 Townsend Street, Suite 216  
San Francisco, CA 94107

Project Director:	Barbara W. Sahm
Project Manager:	Julie Tilley Barlow, AICP
Staff Planner	Peter Mye
Staff Scientist:	Barbara Westree
Editor:	Elizabeth Haines

Hydroconsult Engineers, Inc. (Wastewater, Stormwater)  
45 Polk Street, 3<sup>rd</sup> Floor  
San Francisco, CA 94102

Beth Goldstein





**APPENDIX A. SAN FRANCISCO BOARD OF SUPERVISORS  
LEGISLATION**

---





Appendix A  
San Francisco Board of Supervisors Legislation

FILE NO. 081004

RESOLUTION NO.

[Interim Controls On Major Rights of Way Along and Near the Southern 19<sup>th</sup> Avenue Corridor.]

**Resolution adopting more restrictive interim controls for a period of eighteen months that would require conditional use authorization for new residential developments over 20 units or for new commercial or retail developments over 50,000 square feet on both sides of the following rights of way along and near the Southern 19<sup>th</sup> Avenue Corridor: commencing at Lake Merced Boulevard where it begins at the County line, north along Lake Merced Boulevard to Sloat Boulevard, east along Sloat Boulevard to 19<sup>th</sup> Avenue, north along 19<sup>th</sup> Avenue to Taraval Street, east on Taraval Street to Claremont, south on Claremont to Portola, southwest on Portola to Junipero Serra Boulevard, and south on Junipero Serra Boulevard to the County line; adopting environmental findings and a determination of consistency with the priority policies of Planning Code Section 101.1.**

WHEREAS, Planning Code Section 306.7 provides for the imposition of interim zoning controls in order to control uses which, among other things, have an adverse impact upon the preservation of residential neighborhoods, have an adverse impact upon the preservation of neighborhoods and areas of mixed residential and commercial uses, and which generate an adverse impact on pedestrian and vehicular traffic; and

WHEREAS, There are several developments proposed along and near the Southern 19<sup>th</sup> Avenue Corridor in the City that are expected to increase population density and add more than 7,200 residential units to the area over a period of time. San Francisco State's 2007-2020 Campus Master Plan calls for increasing its student body from 20,000 full-time students to 25,000 full-time students and creating 657 new housing units; a project at 77-111 Cambon Drive, abutting 19<sup>th</sup> Avenue just to the south of 19<sup>th</sup> Avenue and Crespi, will add 192 new condominium units and 14,000 square feet of new retail space; 800 Brotherhood Way

1 received environmental approval for a 187-unit project; Ardenwood at 19<sup>th</sup> Avenue and  
2 Wawona is proposing to add 154 new housing units; Parkmerced proposes to add over 5,000  
3 new housing units in stages of 200 to 300 units a year over the next twenty years; and the  
4 San Francisco Unified School District has entered into a development agreement with a  
5 private developer for the old School of the Arts site for an undefined multi-unit residential  
6 project ;

7 WHEREAS, According to the 2003 Stonestown Village Draft Environmental Impact  
8 Report, there are a number of "F" Level of Service intersections (19<sup>th</sup> Avenue and Sloat  
9 Boulevard, 19<sup>th</sup> Avenue and Winston Drive, 20<sup>th</sup> Avenue and Buckingham Way) and "D" Level  
10 of Service intersections (19<sup>th</sup> Avenue and Holloway, Junipero Serra Boulevard and Winston  
11 Drive, Buckingham Way and Winston Drive) along and near the Southern 19<sup>th</sup> Avenue  
12 Corridor; and

13 WHEREAS, Pedestrian safety and traffic congestion throughout the Southern 19<sup>th</sup>  
14 Avenue neighborhoods are a major concern of the residents in the area; and

15 WHEREAS, This Board of Supervisors has considered the impact on the public health,  
16 safety, peace, and general welfare if the interim controls herein were not proposed; and,

17 WHEREAS, This Board has determined that the public interest will best be served by  
18 imposition of these interim controls at this time in order to ensure that the legislative scheme  
19 which may ultimately be adopted is not undermined during the planning and legislative  
20 process for permanent controls; and

21 WHEREAS, The Planning Department has determined that the actions contemplated in  
22 this Resolution are in compliance with the California Environmental Quality Act (California  
23 Public Resources Code sections 21000 et seq.). Said determination is on file with the Clerk of  
24  
25



1 the Board of Supervisors in File No. \_\_\_\_\_ and is incorporated herein by  
2 reference; now, therefore, be

3 RESOLVED, Pursuant to Planning Code Section 306.7, this Board of Supervisors  
4 hereby requires that a conditional use authorization under Section 303 of the Planning Code  
5 is needed for the establishment of a new residential development over 20 units or for a new  
6 commercial or retail development over 50,000 square feet on both sides of the following rights  
7 of way along and near the Southern 19<sup>th</sup> Avenue Corridor unless such use is already  
8 prohibited: Commencing at Lake Merced Boulevard where it begins at the County line, north  
9 along Lake Merced Boulevard to Sloat Boulevard, east along Sloat Boulevard to 19<sup>th</sup> Avenue,  
10 north along 19<sup>th</sup> Avenue to Taraval Street, east on Taraval Street to Claremont, south on  
11 Claremont to Portola, southwest on Portola to Junipero Serra Boulevard, and south on  
12 Junipero Serra Boulevard to the County line; and, be it

13 FURTHER RESOLVED, That in addition to the information that the Planning Code or  
14 Planning Commission requires to be submitted with an application for a conditional use, the  
15 Board of Supervisors further requires that any project subject to these interim controls shall  
16 submit parking and traffic studies for the area surrounding the proposed project, which shall  
17 be, at least, north to Taraval and west to the Great Highway and Skyline Boulevard; and, be it

18 FURTHER RESOLVED, That any project subject to these interim controls must abide  
19 by the conditional use permit notification requirements of the Planning Code; and, be it

20 FURTHER RESOLVED, That in addition to the criteria set forth in Planning Code  
21 Section 303(c) and (d), in acting upon a conditional use required by these interim controls, the  
22 Planning Commission and the Board of Supervisors on appeal shall consider: (1) the  
23 sufficiency of police, fire and emergency evacuation services for the area, (2) traffic impacts  
24 and public transit impacts of the proposed project, (3) impacts of the project upon the  
25

1 residents and other uses in the area, and (4) such other factors as the Commission or the  
2 Board determine are relevant to public safety and quality of life of neighborhood residents.

3 In approving a conditional use for a project subject to these interim controls, the  
4 Commission, and the Board of Supervisors on appeal, shall make specific findings that the  
5 proposed project will not decrease pedestrian safety and worsen traffic conditions such as to  
6 cause a significant impact at major intersections in the surrounding area in the absence of  
7 mitigation measures to lessen those traffic impacts or any other negative physical  
8 environmental impact or make specific findings that such mitigation is infeasible; and, be it

9 FURTHER RESOLVED, That these interim controls shall apply to any project that has  
10 not received its final building permit or site permit when these controls go into effect; and, be it

11 FURTHER RESOLVED, That these interim controls shall not require a new conditional  
12 use authorization for a project that received a conditional use authorization prior to the  
13 effective date of these interim controls but has not yet received its final building or site permit,  
14 except that a new conditional use shall be required in a case where that conditional use  
15 authorization has expired either pursuant to its terms or upon the expiration of three years  
16 from the date of final approval; and, be it

17 FURTHER RESOLVED, That these interim controls shall remain in effect for eighteen  
18 (18) months unless extended by the Board, or until the adoption of permanent legislation for  
19 the area, whichever first occurs; and, be it

20 FURTHER RESOLVED, That these interim controls advance and are consistent with  
21 Priority Policy Numbers 2 and 4 of Planning Code Section 101.1. By requiring a public hearing  
22 and conditional use authorization for new large development projects, the controls will  
23 conserve and protect the quality of life for the residents of the existing neighborhoods  
24  
25

1 surrounding the Southern 19<sup>th</sup> Avenue Corridor and also ensure that new development does  
2 not impede Muni transit service or overburden the area's streets and neighborhood parking.  
3

4 The Board finds that these controls will have no effect upon Priority Policy Numbers 1, 3, 5, 6,  
5 7, and 8 and thus will not conflict with those Policies.  
6

7 APPROVED AS TO FORM:

8 Dennis J. Herrera, City Attorney

9  
10 By: 

11 JUDITH A. BOYAJIAN  
12 Deputy City Attorney  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25



FILE NO. 081005

RESOLUTION NO.

1 [19<sup>th</sup> Avenue Cumulative Impact Study.]

2 **Resolution urging the Planning Department and Municipal Transportation Authority to**  
3 **conduct, and continually update, a comprehensive cumulative transportation impact**  
4 **study encompassing all the reasonably foreseeable developments along the 19<sup>th</sup>**  
5 **Avenue corridor from 19<sup>th</sup> Avenue and Vicente south to the county line, and expressing**  
6 **the Board of Supervisors' intent that individual environmental reviews of any projects**  
7 **along this corridor must incorporate this on-going and comprehensive cumulative**  
8 **impacts analysis to be considered adequate.**

9  
10 WHEREAS, The California State University Board of Trustees, on November 14, 2007,  
11 certified an Environmental Impact Report for San Francisco State University, centrally located  
12 in the southern 19<sup>th</sup> Avenue corridor between Buckingham and Holloway, that authorizes  
13 SFSU to proceed with its 2007-2020 Campus Master Plan, which calls for increasing its  
14 student body from 20,000 full time students to 25,000 full time students and calls for the  
15 creation of 657 new housing units; and,

16 WHEREAS, The San Francisco Planning Department, on October 13, 2007, published  
17 a notice of preparation/initial study for a project at 77-111 Cambon Drive, abutting 19<sup>th</sup>  
18 Avenue just to the south of 19<sup>th</sup> Avenue and Crespi, of 192 new condominium units and  
19 14,000 square feet of replacement retail space; and,

20 WHEREAS, The owners of 800 Brotherhood Way, just west of the 19<sup>th</sup> Avenue and  
21 Brotherhood Way interchange, received environmental approval for a 182-unit project  
22 approximately three years ago; however, these owners have yet to begin construction or  
23 acquire site plans or a building permit, and have placed the land on the market for sale; and,

24 WHEREAS, Development representatives of Ardenwood, a privately owned open  
25 space parcel along 19<sup>th</sup> Avenue just north of the 19<sup>th</sup> Avenue and Sloat Boulevard

1 intersection, are currently soliciting neighborhood input on a low rise development of  
2 approximately 162 housing units, but have not filed an actual plan with the Planning  
3 Department; and,

4 WHEREAS, Development Representatives of General Growth Properties, owners of  
5 Stonestown Mall, have begun discussing a major commercial expansion of their property,  
6 including a new six screen movie theater, a new anchor tenant, and other new commercial  
7 opportunities; and,

8 WHEREAS, The San Francisco Unified School District has entered into a development  
9 agreement with representatives of a private developer for the old School of the Arts site, just  
10 west of the 19<sup>th</sup> Avenue and Holloway intersection, along Font Boulevard, for an undefined  
11 multi-unit residential project; and,

12 WHEREAS, Parkmerced, a neighborhood along 19<sup>th</sup> Avenue with approximately 3,200  
13 housing units, recently filed a proposal with the City's Planning Department that would, if  
14 approved, result in over 5,677 new housing units built in stages of 200 to 300 units a year  
15 over the next fifteen (15) to twenty (20) years; and,

16 WHEREAS, The Balboa Park Better Neighborhoods Plan, which has been moving  
17 through the Better Neighborhoods process for nearly 10 years, if approved, would allow for  
18 the development of a 175 unit residential over retail building approximately 1.5 miles to the  
19 east of 19<sup>th</sup> Avenue, at the current Kragen Auto Center location next to Phelan Loop; and,

20 WHEREAS, 19<sup>th</sup> Avenue, California Highway 1, is the main traffic artery connecting the  
21 North Bay counties to the Peninsula, and population growth in those areas of the Bay Area  
22 has significantly impacted traffic congestion on 19<sup>th</sup> Avenue; and,

23 WHEREAS, According to the 2003 Stonestown Village Draft Environmental Impact  
24 Report, there are a number of "F" Level of Service intersections (19<sup>th</sup> Avenue and Sloat  
25 Boulevard, 19<sup>th</sup> Avenue and Winston Drive, 20<sup>th</sup> Avenue and Buckingham Way) and "D" Level

1 of Service intersections (19<sup>th</sup> Avenue and Holloway, Junipero Serra Boulevard and Winston,  
2 Buckingham Way and Winston Drive), along and near the southern 19<sup>th</sup> Avenue corridor; and

3 WHEREAS, Pedestrian safety and traffic congestion throughout the southern 19<sup>th</sup>  
4 Avenue neighborhoods are a major concern of the residents in the area, as well as to all  
5 users of California Highway 1, regardless of their residence; and,

6 WHEREAS, Individual environmental review of each of these projects that do not  
7 incorporate a cumulative transportation analysis could prevent both residents and neighbors  
8 in the area, and policy makers from truly understanding the cumulative environmental impacts  
9 of all of these projects taken as a whole; and,

10 WHEREAS, In order for residents, neighbors, and policy makers to truly understand  
11 the cumulative impacts of all of these proposals on the southern 19<sup>th</sup> Avenue corridor, a  
12 detailed, consistent and comprehensive cumulative impact study encompassing all of these  
13 projects should be performed prior to, or in conjunction with the environmental reviews of  
14 each of the individual projects; now, therefore, be it

15 RESOLVED, That the Board of Supervisors urges the Planning Department to require  
16 that the transportation consultants engaged for any of the individual projects listed above that  
17 are located along the 19<sup>th</sup> Avenue corridor prepare, under the supervision of the Planning  
18 Department and MTA staff and in consultation with concerned members of the public and  
19 with the individual projects sponsors, a comprehensive cumulative impact study  
20 encompassing all the reasonably foreseeable developments located along the 19<sup>th</sup> Avenue  
21 corridor from 19<sup>th</sup> Avenue and Vicente south to the county line; and, be it

22 FURTHER RESOLVED, That the Board of Supervisors urges the Planning Department  
23 and MTA staff to continually update this cumulative impact study as these projects continue  
24 to move forward, ~~or~~ fail to move forward or new projects are introduced; and, be it



1 FURTHER RESOLVED, That the Board of Supervisors urges the Planning Department  
2 to require that all the proposed projects contribute funds or in-kind services to support the  
3 publication of the first cumulative impact study and its subsequent updates; and, be it

4 FURTHER RESOLVED, That the Board of Supervisors urges the Planning Department  
5 to require that the cumulative impact study considers the cumulative impacts of traffic, public  
6 transit, transportation and circulation, public services and utilities, and recreational resources,  
7 as would otherwise be analyzed in each California Environmental Quality Act document; and,  
8 be it

9 FURTHER RESOLVED, That the Board of Supervisors urges the Planning Department  
10 and MTA to ensure that the cumulative impact study considers the following five tiers of  
11 alternatives when analyzing traffic impact along 19<sup>th</sup> Avenue:

- 12 (1) Future cumulative impacts with no land use changes within the study area and no  
13 infrastructure improvements;
- 14 (2) Future cumulative impacts with reasonably foreseeable land use changes in the  
15 study area and no infrastructure improvements;
- 16 (3) Future cumulative impacts with reasonably foreseeable land use changes in the  
17 study area and only planned publicly funded improvements;
- 18 (4) Future cumulative impacts with reasonably foreseeable land use changes in the  
19 study area and planned publicly funded improvements and reasonably foreseeable  
20 privately funded improvements; and,
- 21 (5) Future cumulative impacts with reasonably foreseeable land use changes in the  
22 study area, planned publicly funded improvements, reasonably foreseeable  
23 privately funded improvements, and prospective, but un-funded, public and  
24 privately funded improvements;

25 and, be it

1        FURTHER RESOLVED, That the Board of Supervisors urges the Planning Department  
2 to ensure that the cumulative parking, traffic, and public transit analysis is not limited to said  
3 impacts only on 19th Avenue, but also includes overall said impacts throughout the project  
4 neighborhood, at least north to Taraval Street and west to Skyline Boulevard and the Great  
5 Highway; and, be it

6        FURTHER RESOLVED, That the Board of Supervisors urges the Planning Department  
7 to circulate a draft of the study to interested members of the public and allow for a public  
8 comment and review period prior to completion of the first draft of the study; and, be it

9        FURTHER RESOLVED, That the Board of Supervisors expresses its intent that  
10 individual environmental reviews of any project along this southern 19<sup>th</sup> Avenue corridor must  
11 incorporate the latest version of the study to be considered adequate; and, be it

12        FURTHER RESOLVED, That the Board of Supervisors urges the Planning Department  
13 and MTA to update the cumulative impact study prior to the issuance of any individual project-  
14 level CEQA document.





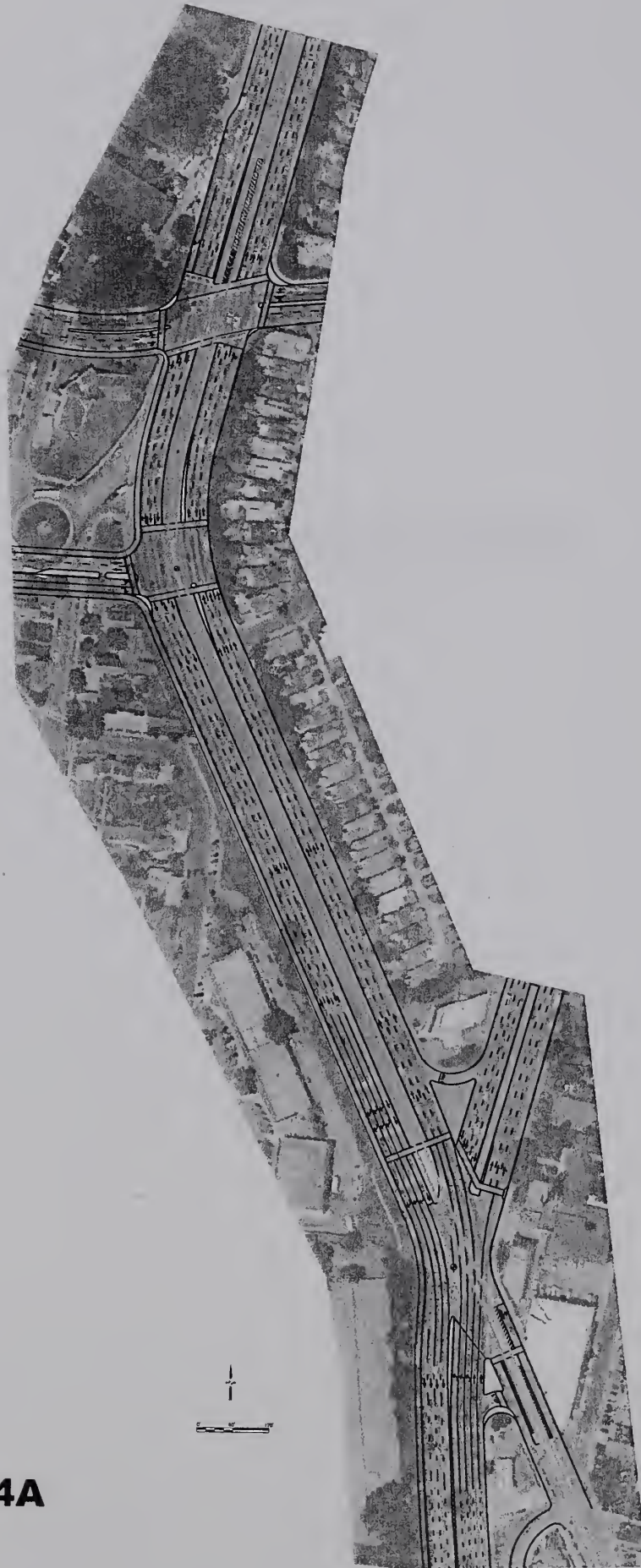
## **APPENDIX B.    CONCEPTUAL PROJECT IMPROVEMENT PLANS**

---



## 19th Avenue Overview





**TIER 4A**



**TIER 4B**

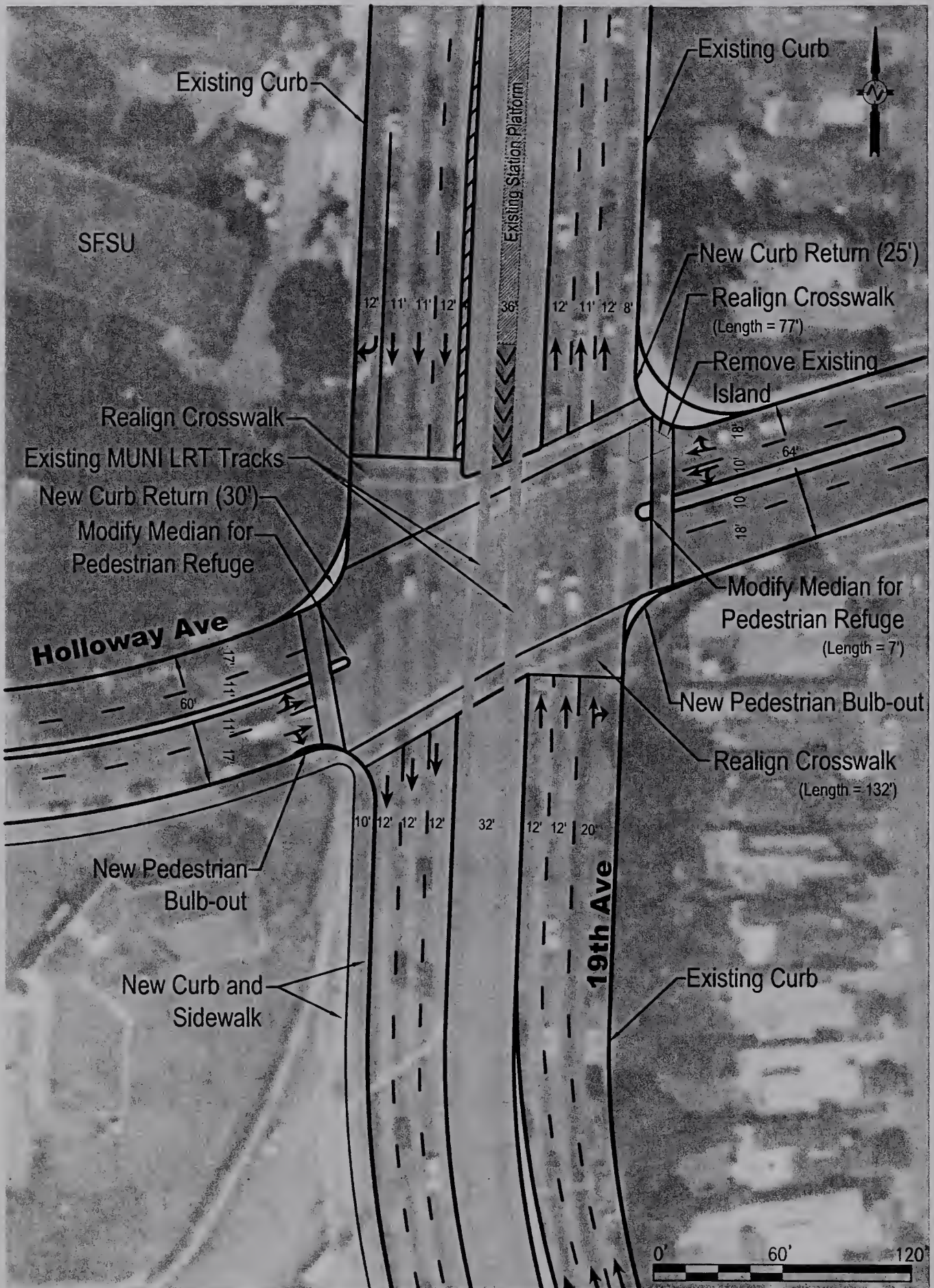




**TIER 4C**



19th Avenue / Holloway Avenue

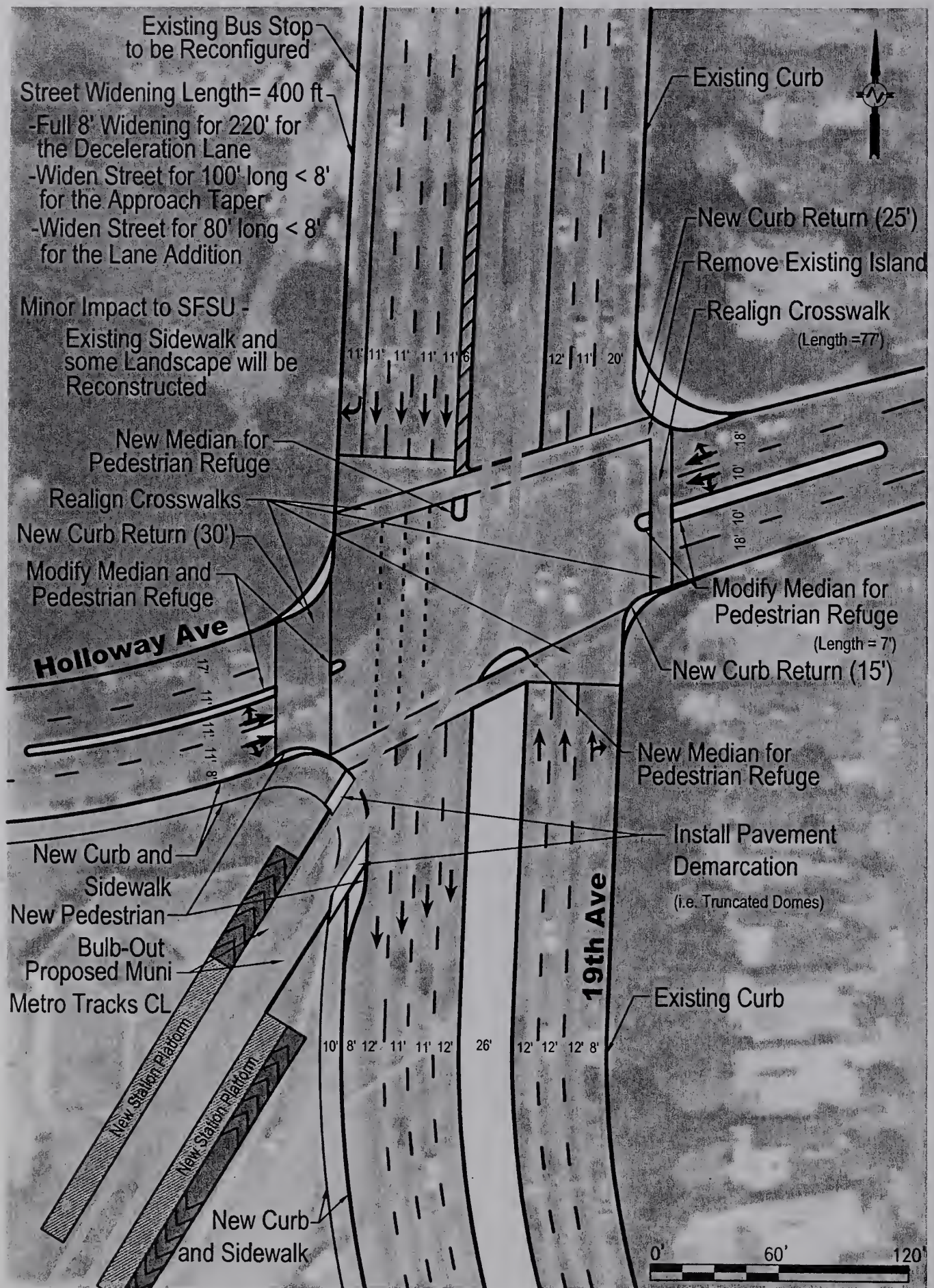


19TH AVENUE / HOLLOWAY AVENUE  
Tier 4A



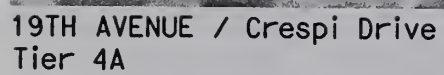






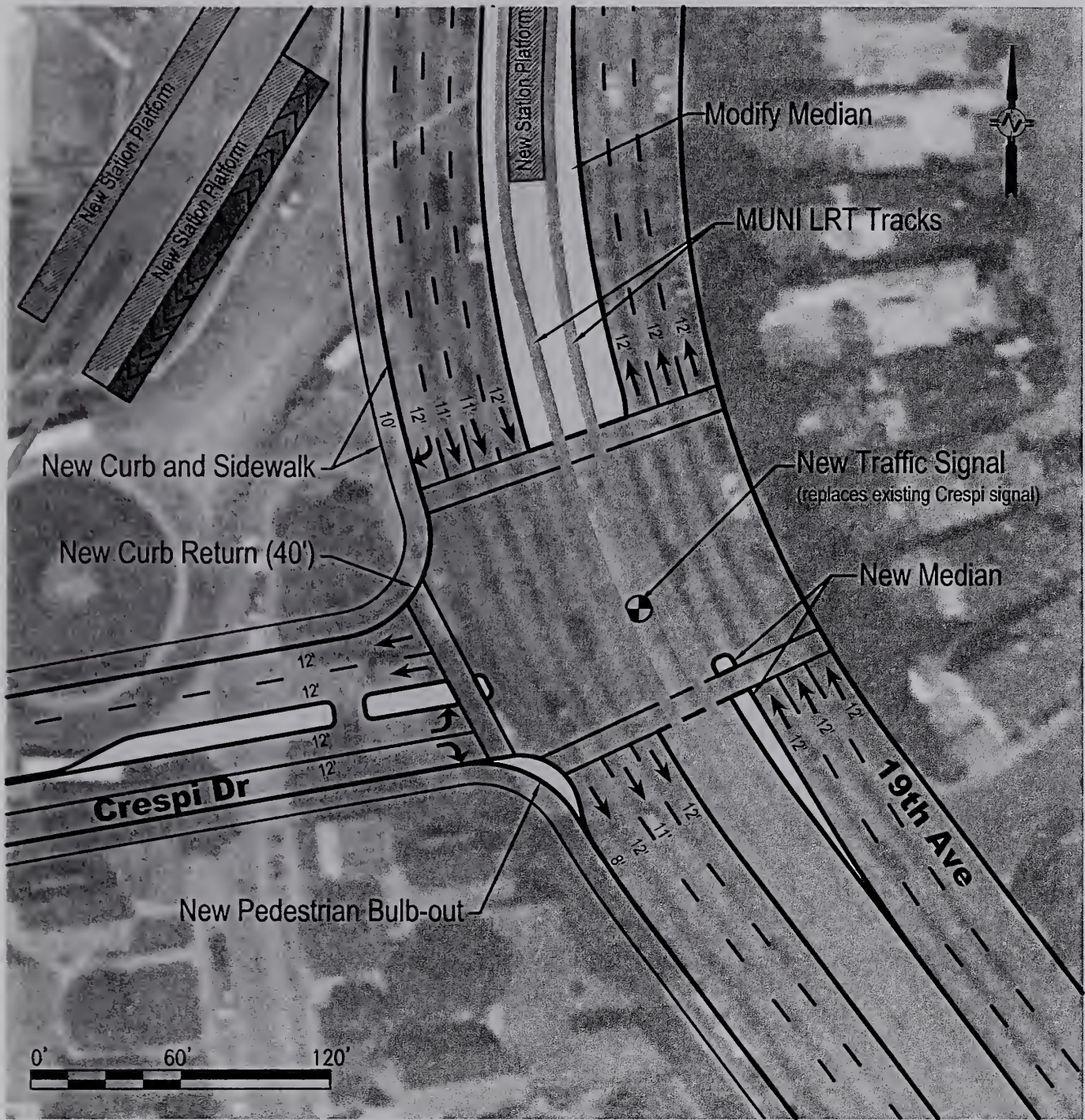
19th Avenue / Crespi Drive





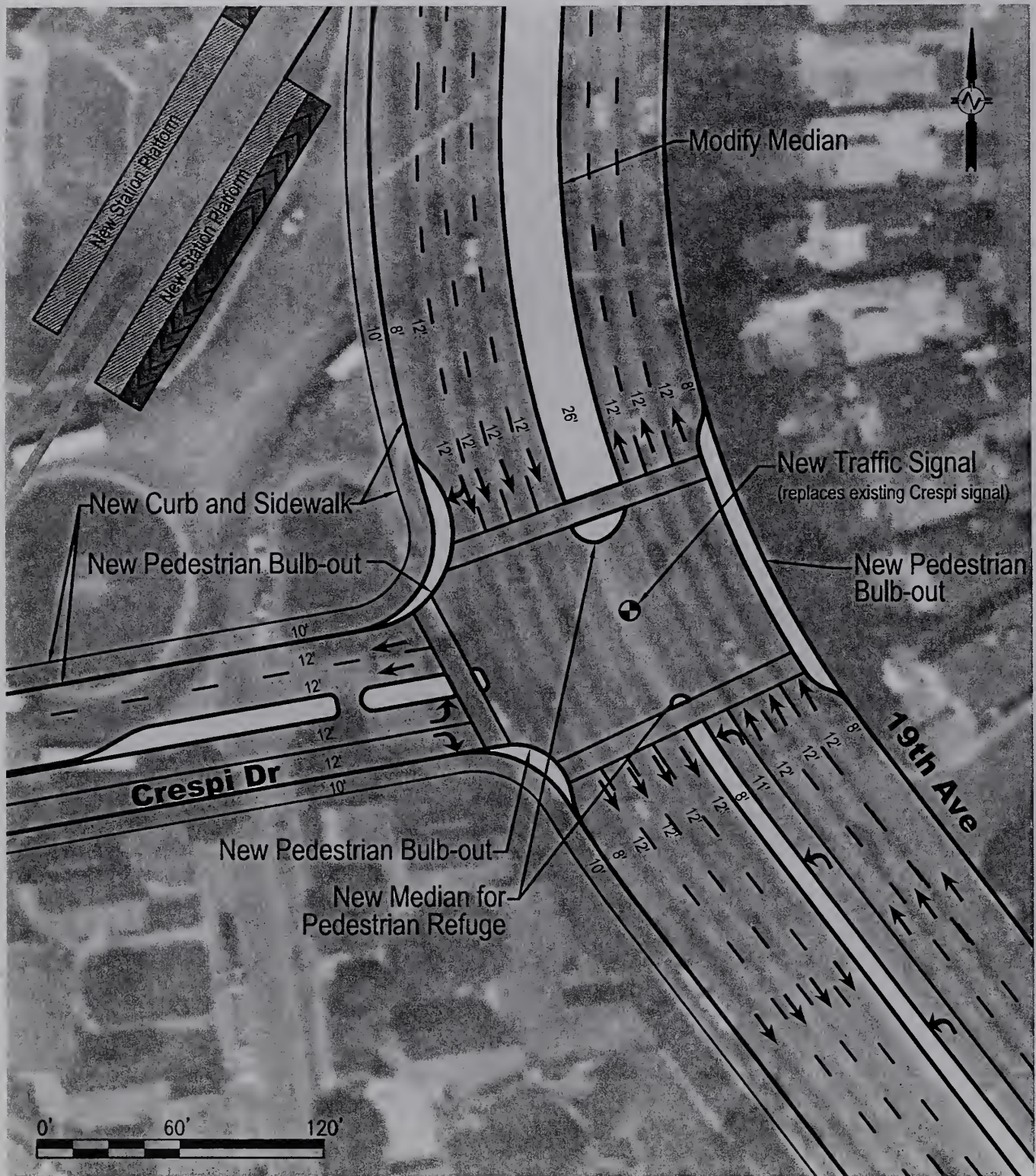
19TH AVENUE / Crespi Drive  
Tier 4A





19TH AVENUE / Crespi Drive  
Tier 4B





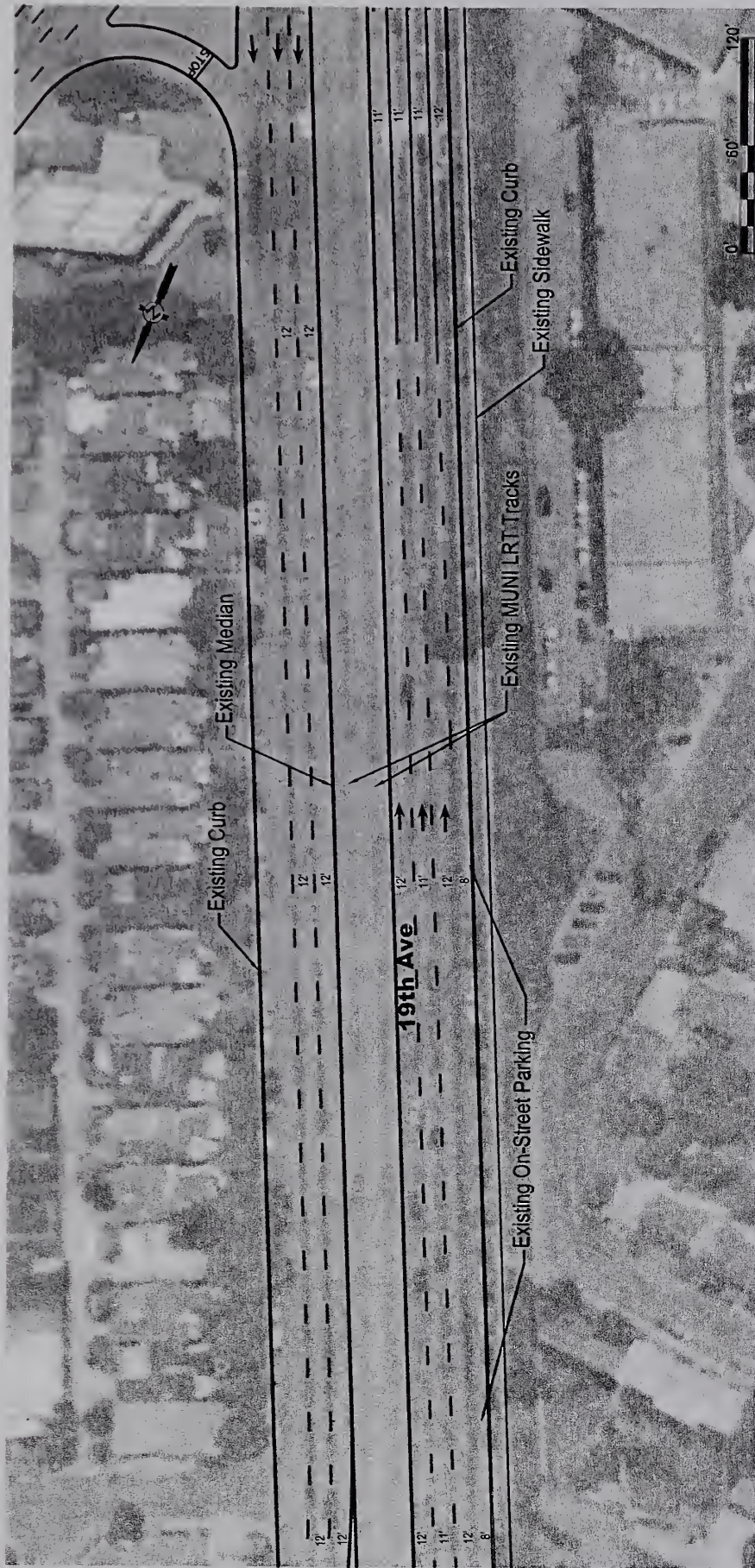
19TH AVENUE / CRESPI DRIVE  
Tier 4C

19th Avenue between Crespi Drive and  
Junipero Serra Boulevard



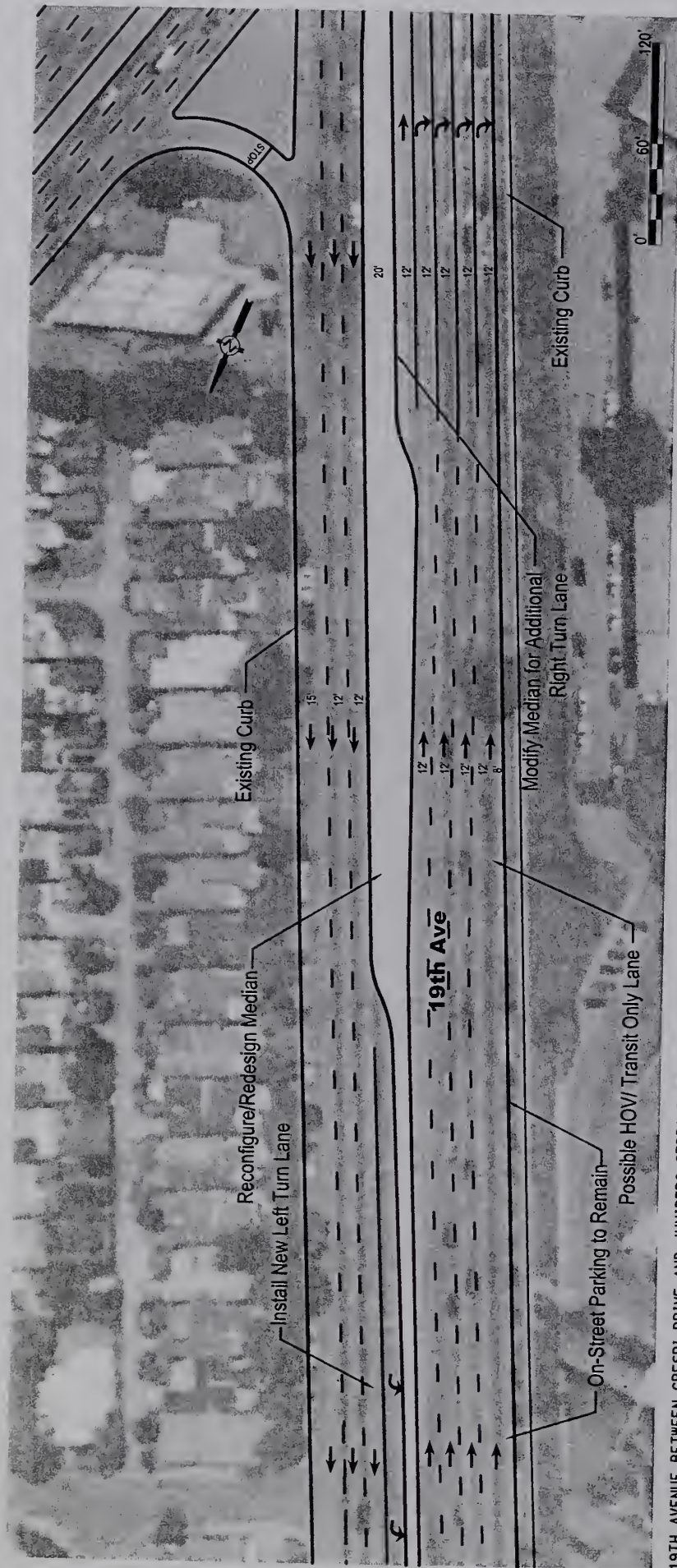






19TH AVENUE BETWEEN CRESPI DRIVE AND JUNIPERO SERRA BOULEVARD  
Tier 4B

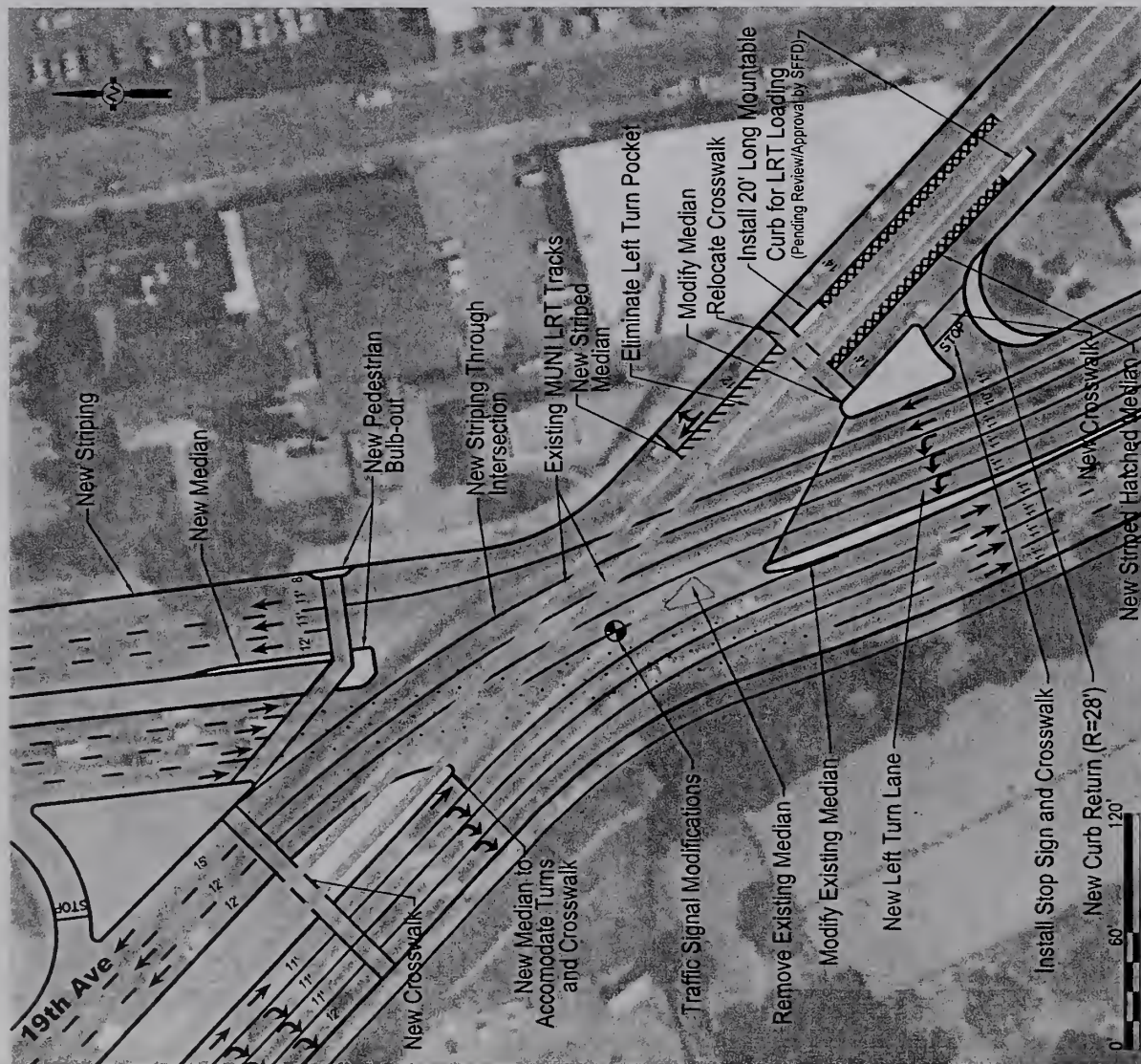




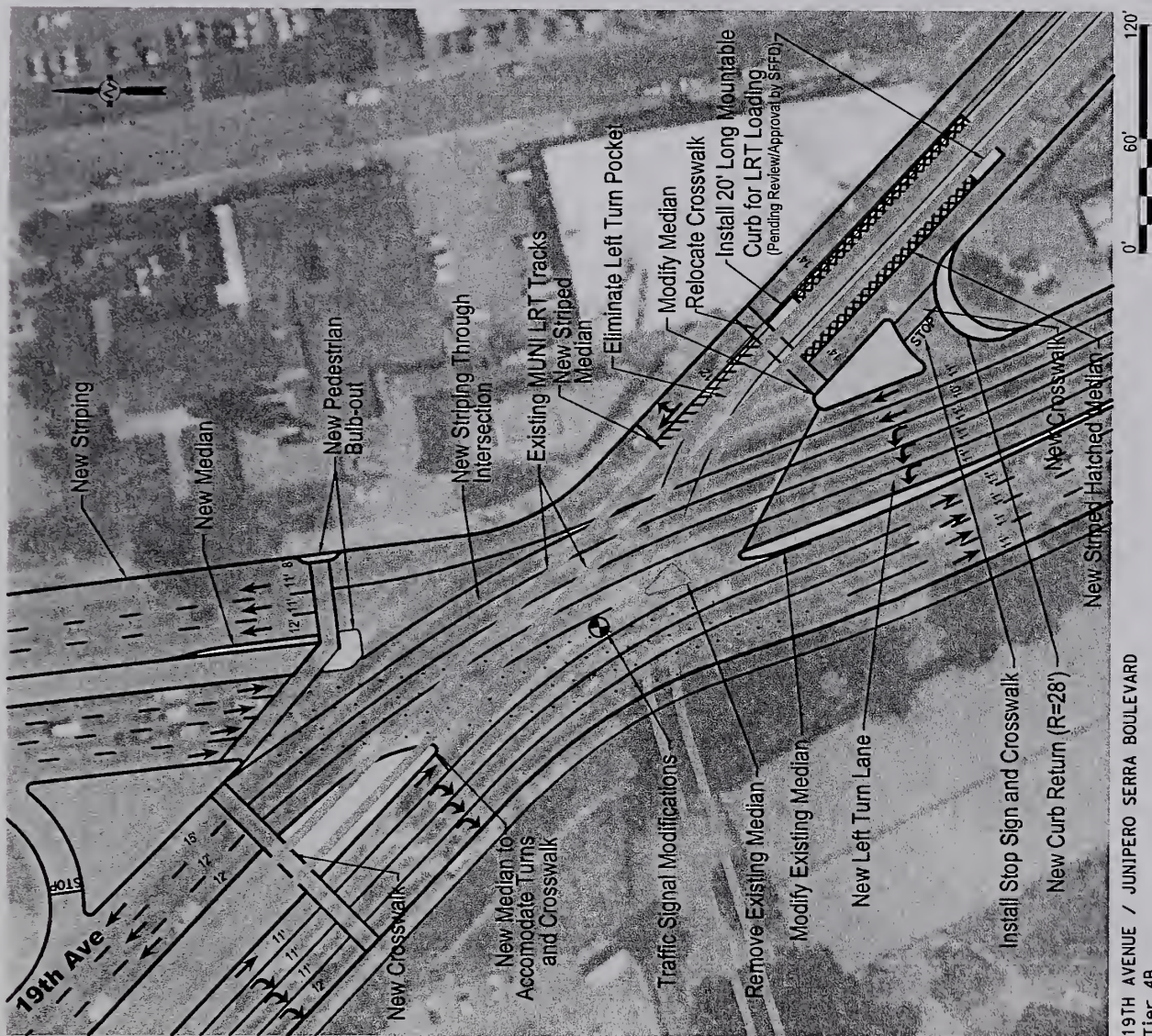
19TH AVENUE BETWEEN CRESPI DRIVE AND JUNIPERO SERRA BOULEVARD  
 Tier 4C



Junipero Serra Boulevard / 19th Avenue

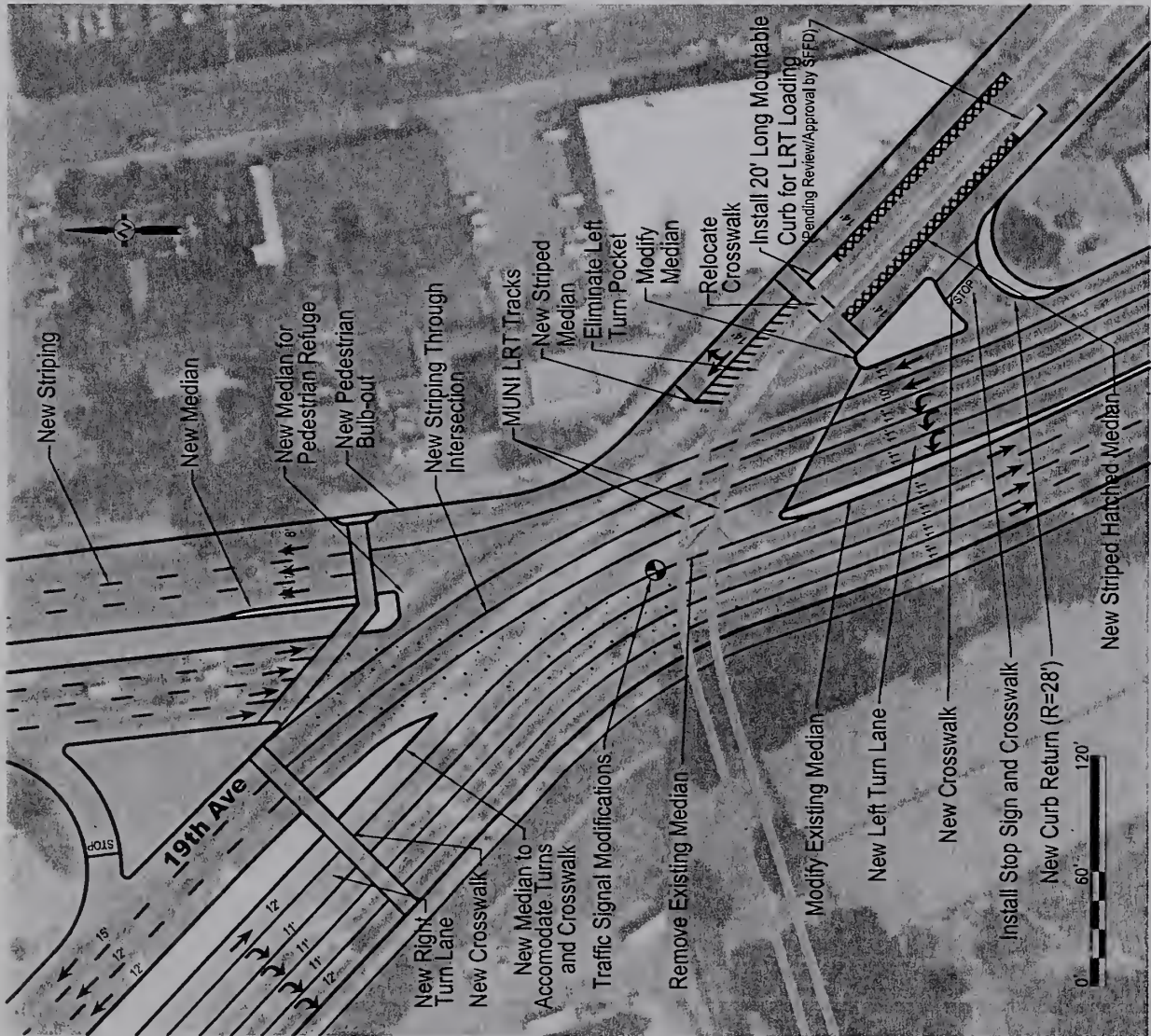






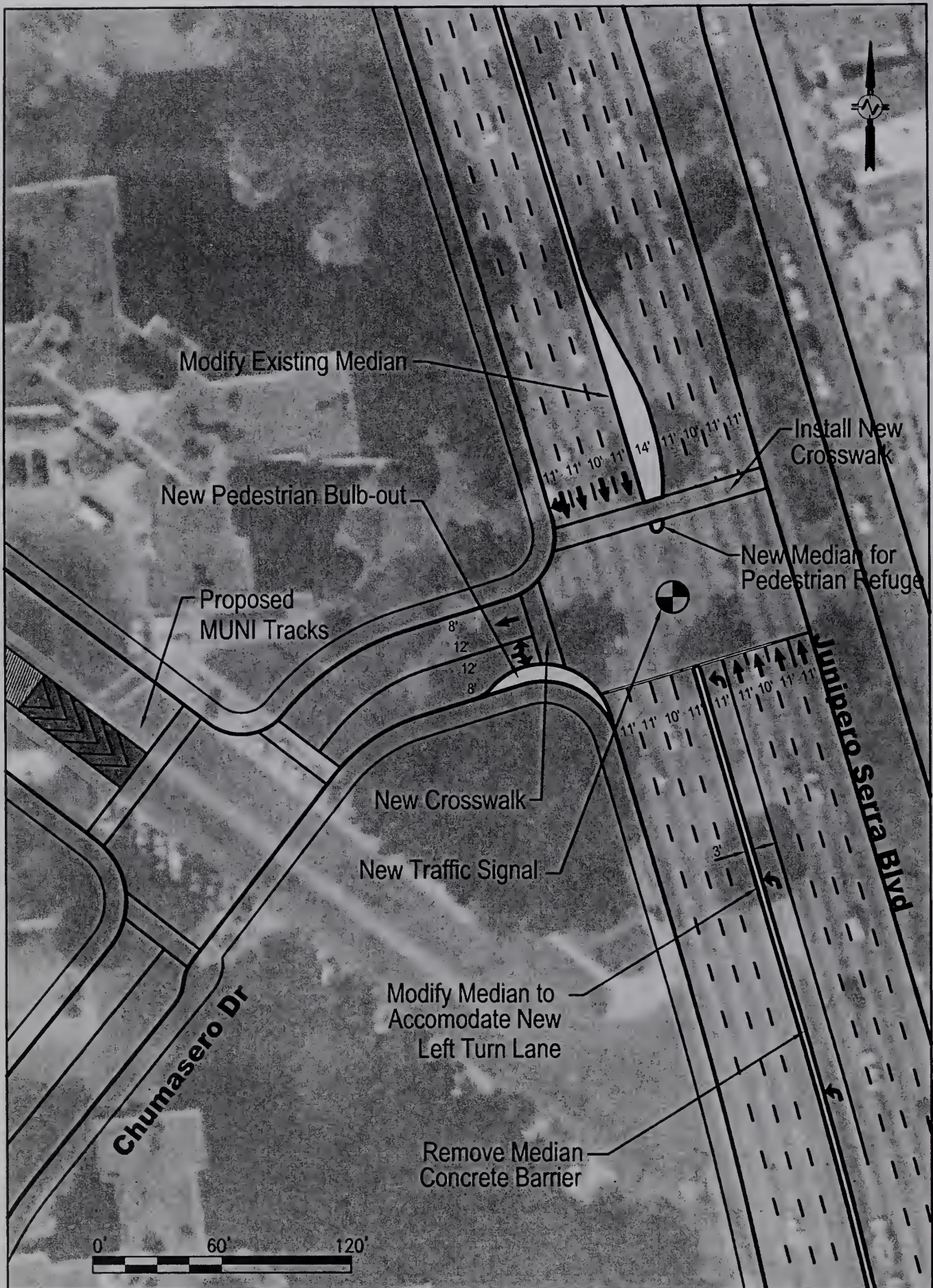
19TH AVENUE / JUNIPERO SERRA BOULEVARD  
Tier 4B





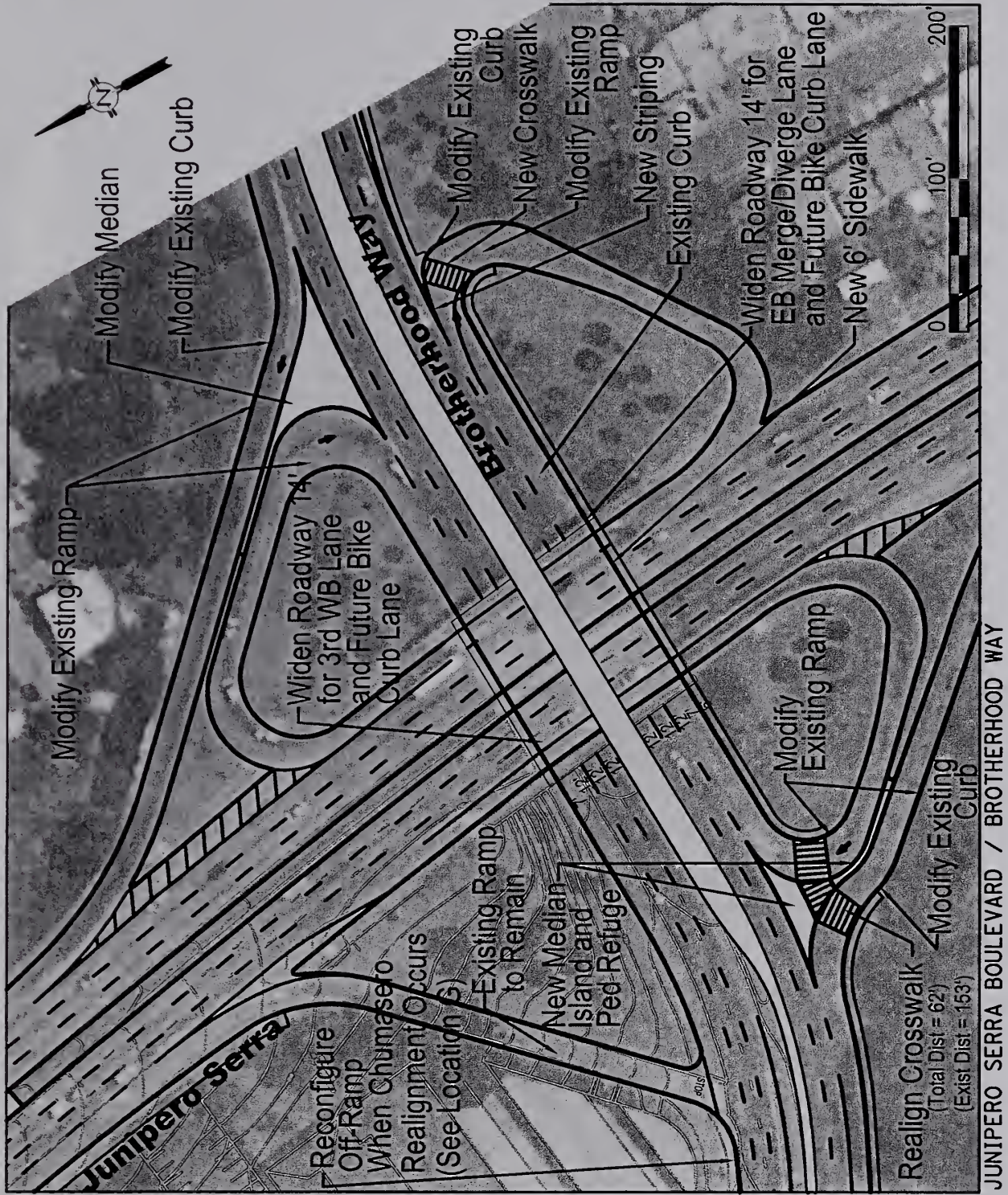
Junipero Serra Boulevard / Chumasero Drive,  
Junipero Serra Boulevard / Brotherhood Way,  
Brotherhood Way / Chumasero Drive,  
Lake Merced Boulevard / Brotherhood Way,  
Lake Merced Boulevard





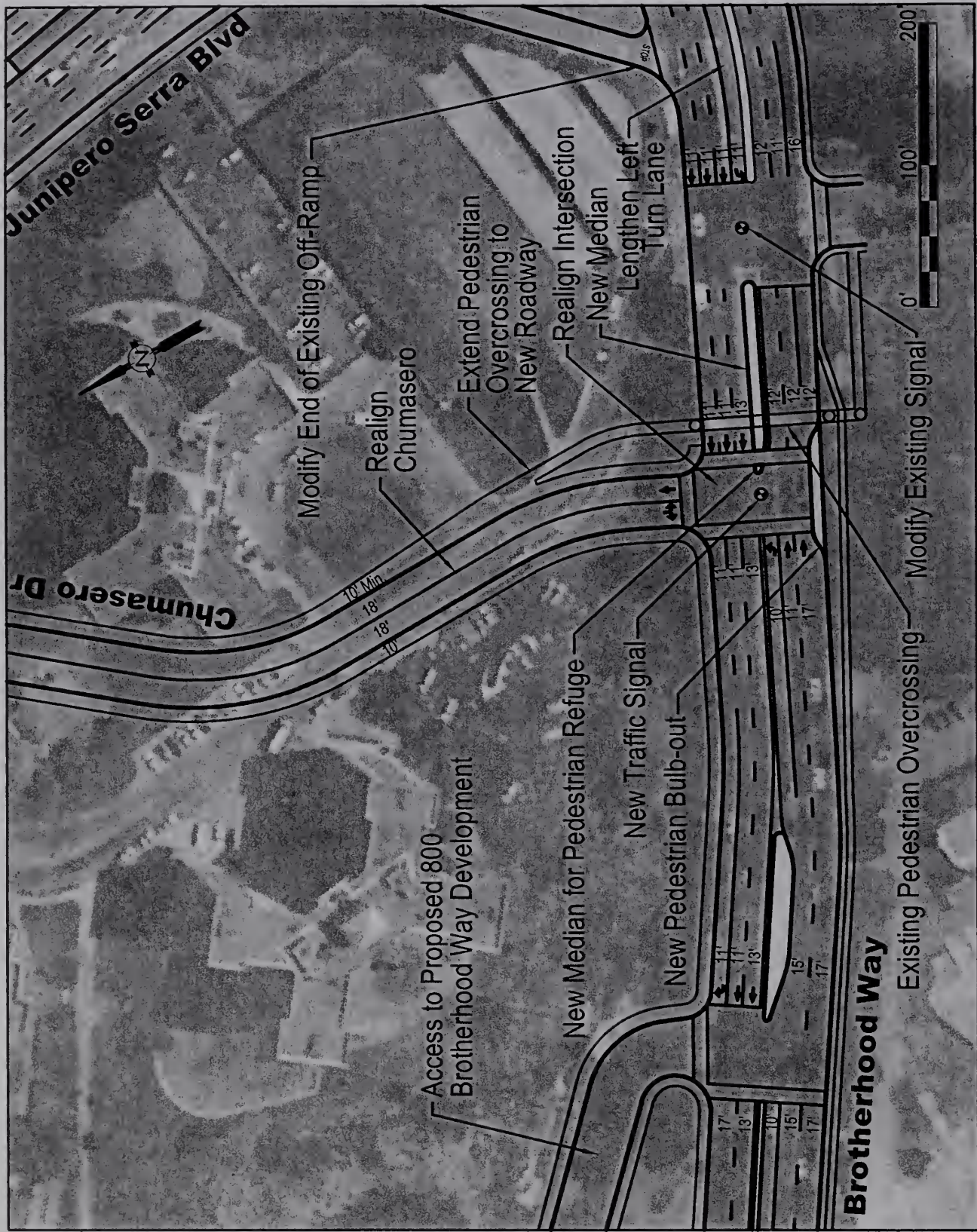
CHUMASERO DRIVE / JUNIPERO SERRA BOULEVARD





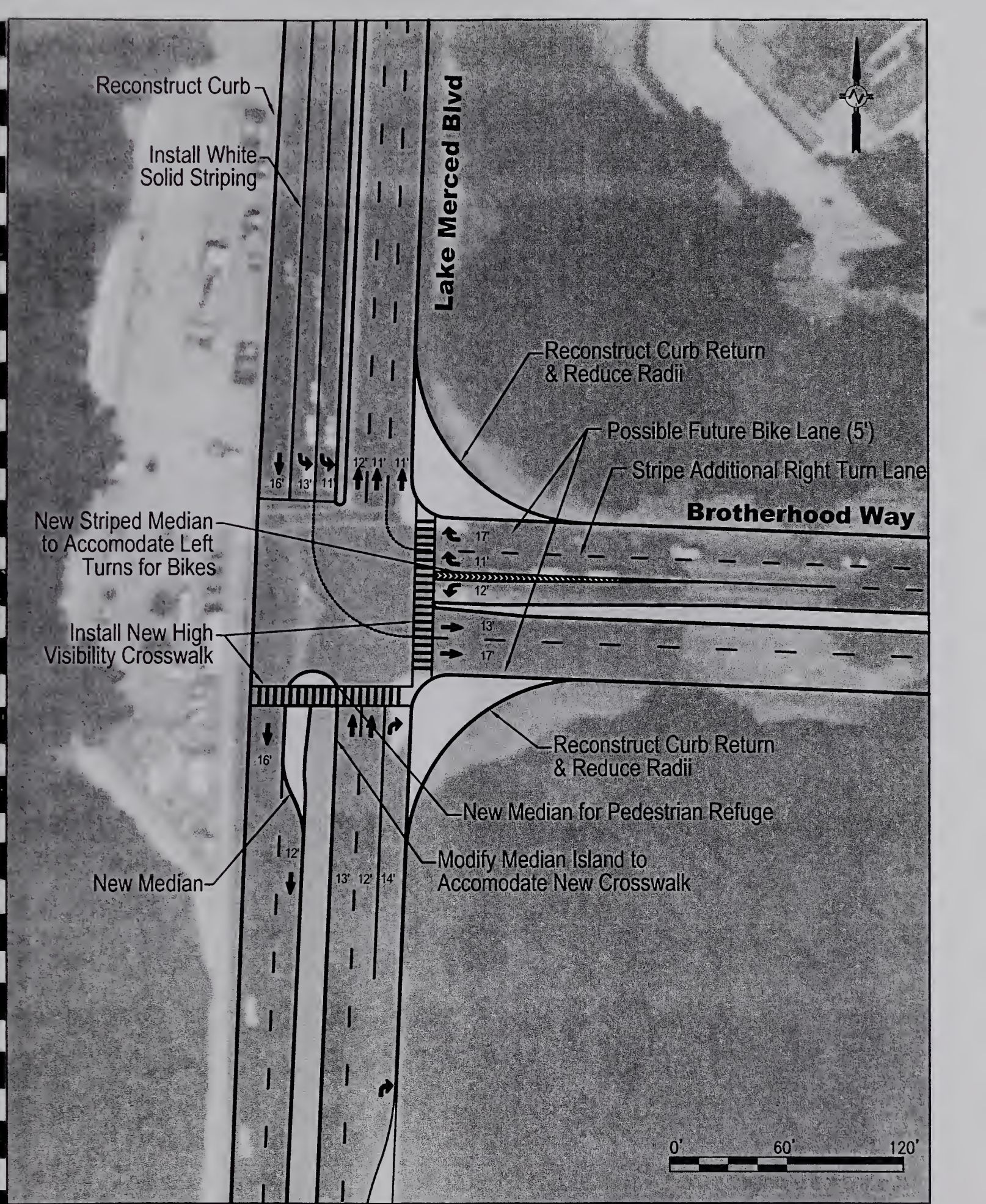
JUNIPERO SERRA BOULEVARD / BROTHERHOOD WAY





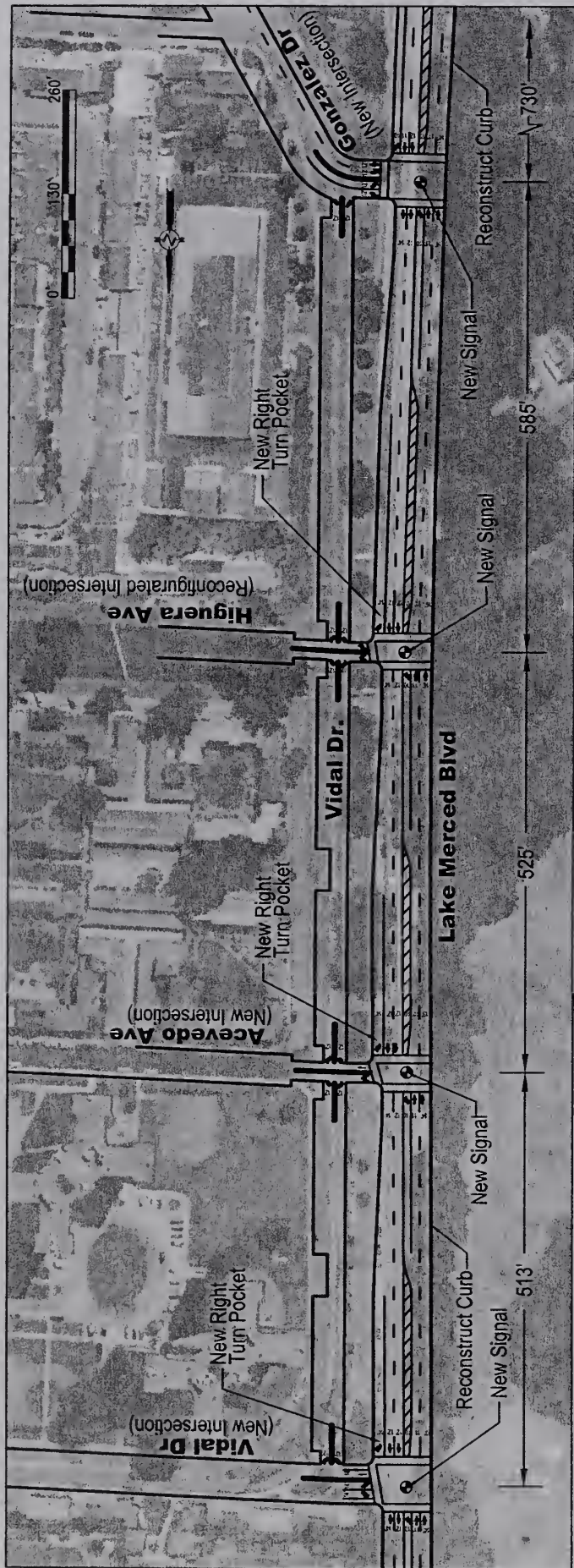
CHUMASERO DRIVE / BROTHERHOOD WAY





LAKE MERCED BOULEVARD / BROTHERHOOD WAY

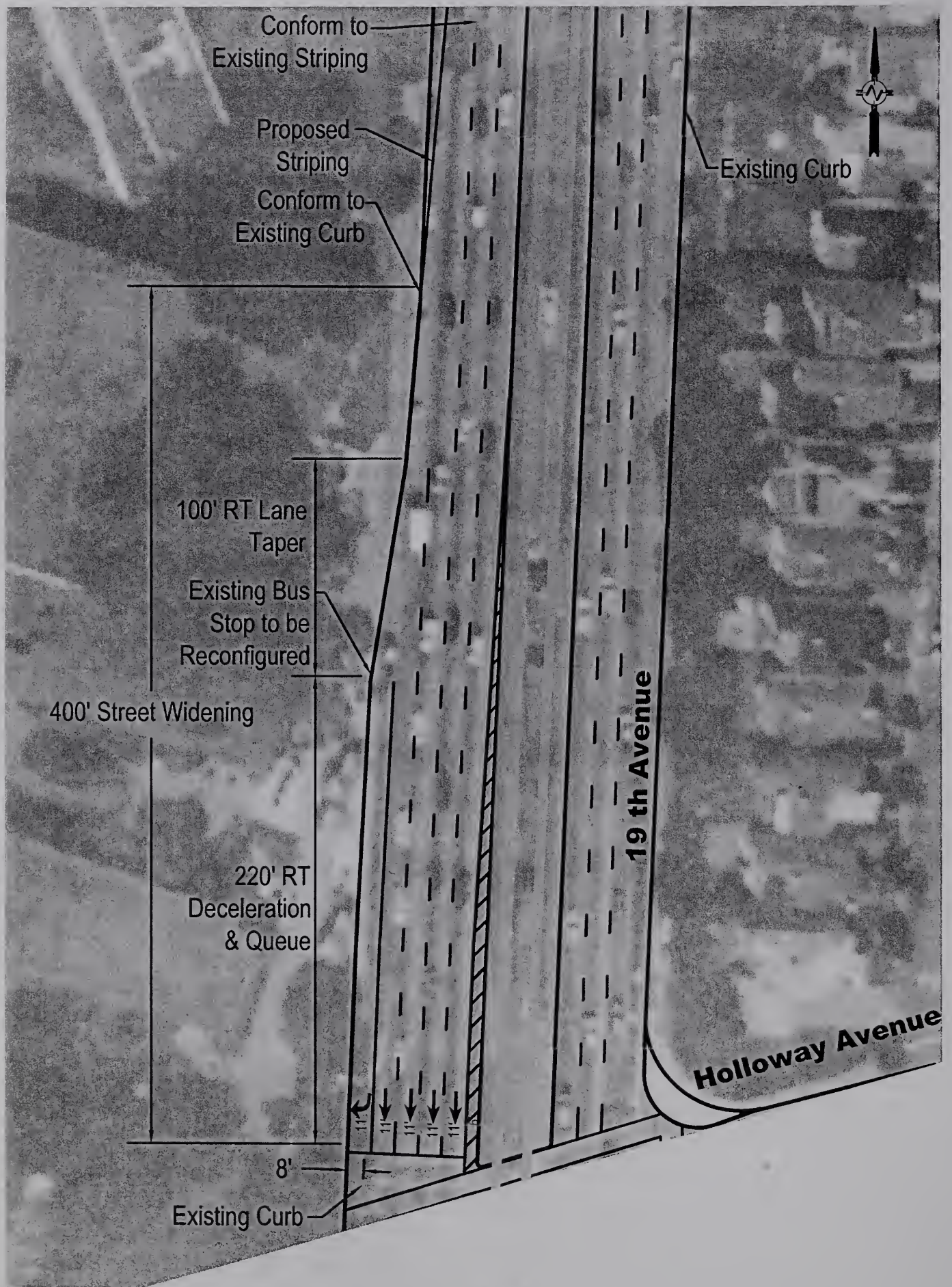




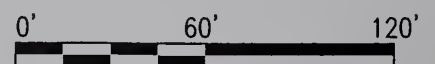
LAKE MERCED BOULEVARD

19th Avenue north of Holloway Avenue,  
Transit Plaza

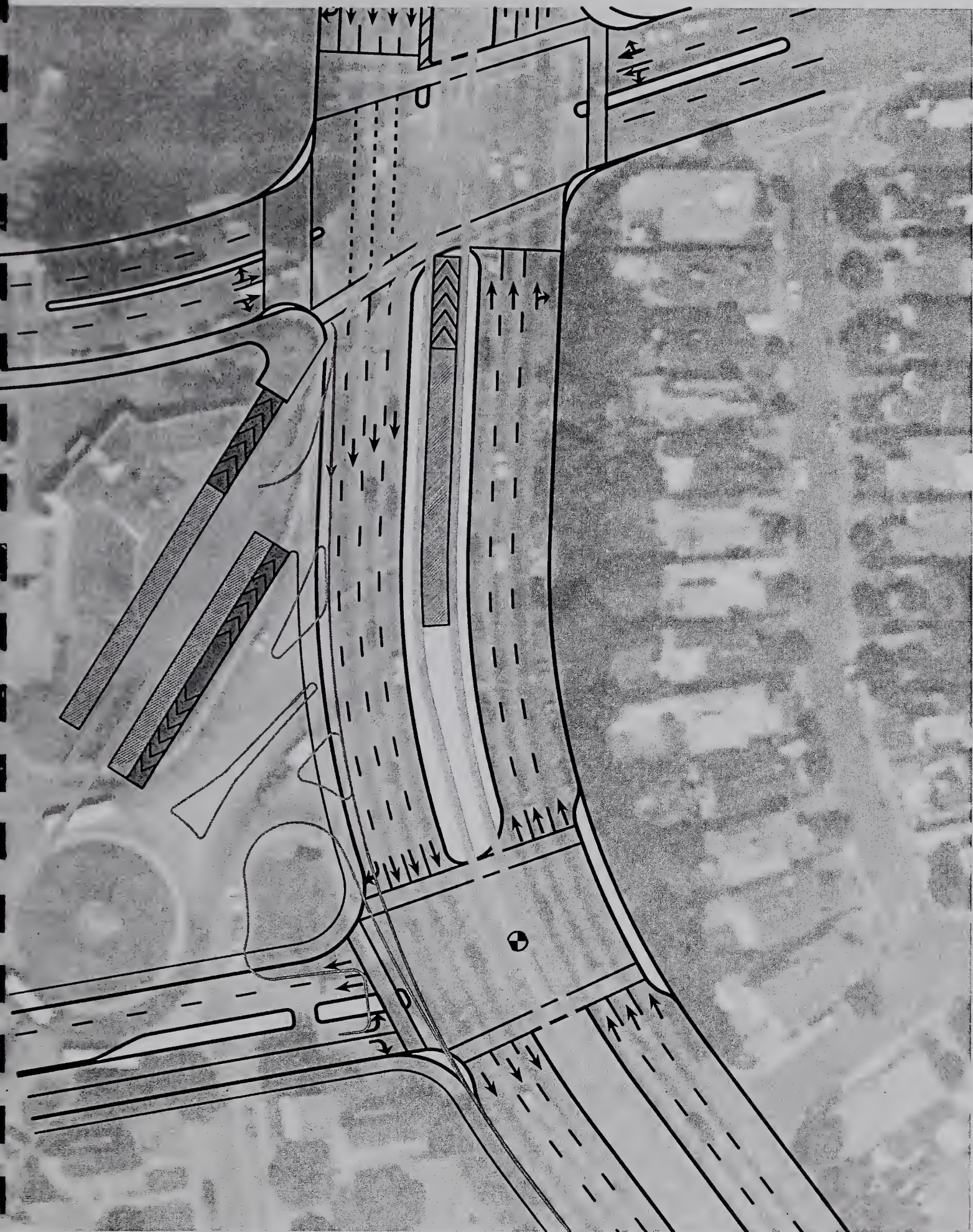




19TH AVENUE / HOLLOWAY AVENUE (NORTH OF HOLLOWAY AVENUE)  
Tier 4C











## **APPENDIX C. AREA PROJECTS TRAVEL DEMAND**

---





Parkmerced

**TABLE 23  
 PARKMERCED PROJECT AM AND PM PEAK HOUR TRIP DISTRIBUTION SUMMARY**

	Person Trips		Transit Trips		Vehicle Trips	
	Work	Non-work	Work	Non-work	Work	Non-work
Downtown	18.1%	2.8%	46.4%	16.6%	8.8%	1.4%
Rest of SD 1	11.4%	2.2%	24.8%	10.5%	7.1%	1.4%
SD 2	12.8%	11.9%	10.5%	23.5%	14.2%	11.0%
SD 3	10.0%	18.9%	5.8%	18.2%	11.2%	19.1%
SD 4	18.3%	30.1%	7.8%	15.5%	19.3%	29.9%
<i>Subtotal SF</i>	70.6%	65.9%	95.3%	84.2%	60.6%	62.7%
Brisbane, DC, Colma, SB, SSF	12.7%	24.3%	2.2%	11.9%	16.9%	26.5%
Rest of SB	12.0%	2.8%	0.9%	0.6%	16.4%	3.1%
EB	3.7%	3.5%	1.5%	2.9%	4.6%	3.7%
NB	1.0%	3.5%	0.0%	0.4%	1.4%	4.0%

Source: Fehr & Peers, September 2009



## CHAPTER 9. NET NEW PERSON TRIPS

The net new trips generated by the project can be calculated by subtracting existing trips generated (Chapter 1) from the forecasted total project trips generated (Chapter 8). As described in Chapter 1, the existing trips were estimated in order to quantify the current contributions of the existing land use to the transportation system. This land use will be redeveloped as part of the project. The net new trips for the AM and PM peak hours are shown in Tables 24 and 25, respectively, for auto, transit, and bicycle and represent trips that will be external to the site and thus affect the transportation network.

**TABLE 24  
 PARKMERCED PROJECT NET NEW TRIPS - AM PEAK HOUR**

	Person Trips					Vehicle Trips
	Auto	Transit	Bicycle	Reduced	Total	
Existing Conditions	2,117	908	91 <sup>1</sup>	-	3,116	1,331
Future Cumulative Forecast	6721	1395	252	-2677	6,089	2,952
Net New (difference)					<b>3,095</b>	<b>1,621</b>
<i>SF Guidelines</i> <sup>2</sup>	9,386				9,386	
SFCTA CHAMP Model	3,083				3,495	

Notes:  
<sup>1</sup> Bicycle trips were not calculated as part of the existing conditions. BATS identifies that 3% of trips made are bicycle trips, therefore, the resulting value is 3% of the auto and transit trips combined.  
<sup>2</sup> The *SF Guidelines* are based on standard rates and do not account for site design, land use diversity, development density, internalization, or other trip reduction factors.  
 Source: Fehr & Peers, September 2009

**TABLE 25  
 PARKMERCED PROJECT NET NEW TRIPS - PM PEAK HOUR**

	Person Trips					Vehicle Trips
	Auto	Transit	Bicycle	Reduced	Total	
Existing Conditions	2,260	968	99 <sup>1</sup>	-	3,387	1,421
Future Cumulative Forecast	7999	1686	299	-2595	9,448	4,522
Net New (difference)					<b>6,234</b>	<b>3,101</b>
<i>SF Guidelines</i> <sup>2</sup>	12,762				12,762	
SFCTA CHAMP Model	3,589				4,247	

Notes:  
<sup>1</sup> Bicycle trips were not calculated as part of the existing conditions. BATS identifies that 3% of trips made are bicycle trips, therefore, the resulting value is 3% of the auto and transit trips combined.  
<sup>2</sup> The *SF Guidelines* are based on standard rates and do not account for site design, land use diversity, development density, internalization, or other trip reduction factors.  
 Source: Fehr & Peers, September 2009

## Non-Parkmerced Projects

AECOM

2101 Webster Street, Suite 1900, Oakland, CA 94612

T 510.622.6600 F 510.834.5220

## Memorandum

---

Date: September 9, 2009

To: Bill Wycko, San Francisco Planning Department

From: Tim Erney / Ryan Niblock

Subject: 19th Avenue Corridor Study – Proposed Travel Demand Analysis Assumptions for Non-Parkmerced Development (Final)

---

This memorandum summarizes the methodology and key analysis assumptions in the travel demand calculations for non-Parkmerced area projects to be evaluated in the 19th Avenue Corridor Study. The purpose of this corridor study is to evaluate the future travel conditions along 19th Avenue in the southwestern corner of San Francisco in relation to the anticipated growth in development and planned and potential transportation improvements. Included in the list of areawide projects are: Arden Wood, Stonestown Village, San Francisco State University (SFSU), Parkmerced, 77-111 Cambon Drive, 800 Brotherhood Way, 700 Font Boulevard (School of the Arts site), and the Balboa Park Better Neighborhoods Plan.

This final version of the memorandum supersedes an interim version submitted June 22, 2009<sup>(1)</sup> and contains new sources of information and new proposed trip generation methodologies for the SFSU, 77-111 Cambon Drive, and 800 Brotherhood Way projects. After the June 22, 2009 memorandum, two additional memoranda were submitted (dated September 1, 2009 and September 3, 2009)<sup>(2)</sup> which compared the initial trip generation for these projects with trip generation calculations from various other sources and proposed adjustments to ensure consistency. This memorandum incorporates those changes to methodology and represents the final travel demand analysis assumptions for non-Parkmerced development to be used in the 19th Avenue Corridor Study.

### Methodology

#### Resources

For the evaluation of the non-Parkmerced projects within the corridor study, travel demand characteristics were developed for each project using information from two primary sources:

- The San Francisco Planning Department's Transportation Guidelines for Environmental Review – October 2002 (*SF Guidelines*), which includes general trip generation information plus trip distribution and mode split data for the four quadrants of San Francisco; and,

---

<sup>(1)</sup> 19th Avenue Corridor Study – Proposed Travel Demand Analysis Assumptions for Non-Parkmerced Development (Updated), AECOM (June 22, 2009).

<sup>(2)</sup> 19th Avenue Corridor Study – Trip Generation Comparison for Non-Parkmerced Development, AECOM (September 1, 2009).

19th Avenue Corridor Study – SFSU Trip Generation Adjustment, AECOM (September 3, 2009).



Mr. Bill Wycko

September 9, 2009

19th Avenue Corridor Study – Proposed Travel Demand Analysis Assumptions for Non-Parkmerced Development  
(Final)

Page 2

- The San Francisco County Transportation Authority (SFCTA) travel demand model, herein referred as the “SF Model.”

In addition to the above primary sources, supplementary information was obtained from the following sources:

- 2000 U.S. Census, Summary File 3: Place of Work for Workers 16 Years and Over – State and County Level (2000);
- SFSU's *2008 Transportation Survey* (2008), conducted by Nelson \ Nygaard Consulting Associates;
- *Campus Master Plan Environmental Impact Report (Final)*, San Francisco State University, URS Corporation (August 2007), referred to as the “Campus Master Plan EIR”;
- *Cambon Mixed Use Project Transportation Impact Analysis*, Fehr + Peers Transportation Consultants (December 2007), referred to as the “Cambon Draft TIA”;
- *800 Brotherhood Way Project Transportation Study*, CHS Consulting Group (May 13, 2004), referred to as the “800 Brotherhood Study”; and,
- *Balboa Park Station Area Plan Transportation Study*, AECOM (formerly Kolve Engineering) (December 2006).

#### Travel Demand Model

To support the corridor study, five separate model scenarios were considered:

- **Existing (2005);**
- **Tier 1 – 2030 Baseline**  
This model scenario considers background growth throughout the City and region;
- **Tier 2 – 2030 Build**  
In addition to conditions under Tier 1, this model scenario considers the area development projects—i.e., 2030 Baseline plus the area development projects;
- **Tier 3 – 2030 Build plus Public Improvements**  
In addition to conditions under Tier 2, this model scenario considers the improvements proposed (or recently implemented) by various state and municipal government agencies, including Caltrans, the San Francisco Municipal Transportation Agency (SFMTA), the SFCTA, and the Department of Public Works (DPW). These improvements include the following:
  - Speed limit reduction to 30 mph on 19th Avenue (Caltrans);
  - Upgrade of signal infrastructure and installation of pedestrian signals, curb ramps, and street lighting at 16 intersections along 19th Avenue (Caltrans);
  - Striping of edgelines along both sides of 19th Avenue to designate the parking lane and eliminate sidewalk parking (SFMTA / Caltrans);
  - Installation of corner bulbs, pedestrian refuge islands, and landscaping along 19th Avenue (SFCTA);
  - Installation of sidewalk trees and low-growing shrubs in the median of 19th Avenue (DPW);

- Installation of a bike route through SFSU between Buckingham Way and Holloway Avenue to serve as an alternative to any future 19th Avenue bikeway (SFMTA);
  - Implementation of traffic calming measures on Holloway Avenue east of Junipero Serra Boulevard, including possible bicycle lanes, a chicane, and bulb-outs (SFMTA);
  - Implementation of policy recommendations and design guidelines to improve pedestrian safety, accessibility, and streetscape design (e.g., pedestrian-scaled street lighting, landscaping, street furniture, etc.) in the project area as part of the Better Streets Plan (SFMTA / Planning Department);
  - Implementation of traffic calming measures on 19th Avenue between Junipero Serra Boulevard and Randolph Street, including possible bicycle lanes and bulb-outs (SFMTA);
  - Redesign of the intersection of Alemany Boulevard / Brotherhood Way / Orizaba Avenue, including possible signalization and rechannelization (to facilitate connections between Parkmerced and Interstate 280) or conversion to a roundabout (SFMTA);
  - Implementation of Transit Effectiveness Project (TEP) changes to transit service in the study area, including termination of the M-Ocean View at SFSU and extension of the J-Church from Balboa Park Station to SFSU to cover service on the former M route (SFMTA); and,
  - Implementation of transit priority treatments along 19th Avenue to improve transit operations (SFMTA); and,
- **Tier 4 – 2030 Build plus Public and Private Improvements**  
In addition to conditions under Tier 3, this model scenario considers additional transportation improvements proposed as part of the area development projects. These improvements include the following:
    - Realignment of the J-Church and M-Ocean View into the Parkmerced project site between 19th Avenue / Holloway Avenue and Junipero Serra Boulevard / 19th Avenue, including relocation of the 19th Avenue / Holloway Avenue station to the southeast corner of the intersection inside the Parkmerced site and creation of two additional stops inside the development;
    - Redesign of Parkmerced's internal roadway network, including an enhanced "grid" network on the west side of the site and the narrowing of Crespi Drive;
    - Realignment of Crespi Drive and Font Boulevard at 19th Avenue and installation of northbound left-turn pockets at the new intersections;
    - Redesign of the Junipero Serra Boulevard / Brotherhood Way Interchange to facilitate on- and off-ramp merge / diverge movements;
    - Redesign of the intersection of Brotherhood Way / Chumasero Drive / Thomas More Way to facilitate traffic entering the Parkmerced project site from westbound Brotherhood Way east of Junipero Serra Boulevard;
    - Installation of pedestrian and bicycle treatments at the intersection of Lake Merced Boulevard / Brotherhood Way, including possible removal of channelization, roadway narrowing and restriping, and relocation or redesign of crosswalks; and,
    - Creation of new intersections on Lake Merced Boulevard at Gonzalez Drive and Vidal Drive and redesign of existing intersections at Higuera Avenue and Acevedo Avenue.

The most-recent land use program for each of the area projects was included into the following model traffic analysis zones (TAZs) under the 2030 Build run:

- Parkmerced: TAZ 31, 34, 52, 883, 884, 887, and 888; and,
- Non-Parkmerced:
  - Arden Wood: TAZ 430;
  - Stonestown: TAZ 918; and,
  - SFSU and 700 Font Boulevard: TAZ 917.

Parkmerced TAZ 883 also contains the 77-111 Cambon Drive site, while Parkmerced TAZ 884 also contains the 800 Brotherhood Way site. Data for the Balboa Park project was obtained from the *Balboa Park Station Area Plan Transportation Study* and did not rely on SF Model outputs.

#### Travel Demand Characteristics

For the purposes of the corridor study, it is necessary to track the vehicle-trips and transit-trips associated with each of the area development projects as a means to determine project contributions to intersection volumes and transit ridership. As such, the travel characteristics of each project will be developed separately and then manually assigned to the future roadway network. This approach will also allow for additional refinements to the travel demand characteristics for Parkmerced and the other area projects, and for the identification of any outstanding inconsistencies between the various data sources.

For the purposes of this evaluation, the proposed methodology and approach were separated into two categories—the Parkmerced development and non-Parkmerced projects—with different assumptions provided for each category. For each category, recommendations were developed for the following travel demand characteristics:

- Trip generation;
- Trip distribution;
- Mode split and average vehicle occupancy (AVO);
- Inbound / outbound splits; and,
- Internal trip capture.

Internal trip capture was considered for the Stonestown and SFSU projects, due to their location on sites with a large mix of uses and high potential for trips with origins and destinations within the site. Smaller, single-use projects typically do not exhibit internal trip capture, so its effects on trip generation were not considered for these cases.

The assumptions for the Parkmerced development will be covered in a separate submittal. As such, this memorandum focuses on the assumptions for the non-Parkmerced projects.

#### **Proposed Travel Demand Assumptions – Non-Parkmerced Projects**

In general, the travel demand approach bases all travel demand characteristics on output from the SF Model, with the exception of trip generation rates. For trip generation purposes, information was obtained from both the SF Model and the *SF Guidelines*. However, the trip generation in the SF Model is based on the number of household units and employment by different land use types on a TAZ level, whereas the *SF Guidelines* approach is based on trip rates provided for each land use type by number of units or size



of each land use. To compare the trip generation differences between both sources, the land use program for each area TAZ as modeled in the 2030 Build scenario was converted to the number of units and square feet of land use type.

It should be noted that the *SF Guidelines* only presents trip generation information for the weekday daily and weekday PM peak hour time periods. However, the corridor study will also be assessing the weekday AM peak hour. To estimate the weekday AM peak hour trip generation rates, information from the Institute of Transportation Engineers' (ITE) *Trip Generation, 8th Edition* was used for all the non-Parkmerced proposed developments. From *Trip Generation*, a ratio of AM peak hour to PM peak hour trip generation rates was determined for each land use, and then applied to the appropriate *SF Guidelines* rate. In general, variations between the two sources are to be expected, as they use different methodologies and approaches. For instance, the *SF Guidelines* assumes that each land use is isolated and so all trips are considered new trips, while the SF Model accounts for the trip linking within a building or a development, thereby generating fewer new trips.

In addition, the *SF Guidelines* recommends the use of census data from relevant census tracts to develop the mode split and trip distribution for residential uses. However, census data is only available for place of work (at the county level) and generally only applicable to work trips; therefore, use of other sources of information to supplement the census data is recommended. For the purposes of the corridor study, SF Model outputs were used in conjunction with the census data to develop the mode split and trip distributions for residential uses.

The following sections detail the assumptions concerning travel demand characteristics for each of the non-Parkmerced projects. All *SF Guidelines* calculations are included in the attached Appendix to this memorandum.

### **Arden Wood (TAZ 430)**

Since TAZ 430 includes a K-8 school (West Portal Lutheran School) in addition to residential uses, data cannot be used directly from this TAZ to accurately assess the travel demand characteristics of the Arden Wood project. Therefore, data from the adjacent TAZ 394 was used instead.

#### Trip Generation

**Table 1** presents a comparison of the weekday AM peak hour, weekday PM peak hour, and daily trip generation results from the SF Model and the *SF Guidelines* for the 2030 Build land use program for TAZ 394. As the table indicates, the SF Model's peak hour trip generation for TAZ 394 is approximately 80 percent in the weekday AM peak hour and 54 percent in the weekday PM peak hour of the *SF Guidelines* trip generation estimate.

To account for the difference in trip generation values, it is proposed that an average between the two values be used for the assessment of the Arden Wood project. This would result in a reduction in trips as estimated from the *SF Guidelines* of 10 percent in the weekday AM peak hour and 23 percent in the weekday PM peak hour—in other words, the proposed trip generation would be 90 percent of the *SF Guidelines* totals in the AM peak hour and 77 percent in the PM peak hour. This factor would be applied to the *SF Guidelines* trip generation for the proposed Arden Wood project.

#### Trip Distribution

The Arden Wood project trip distribution for non-work trips was assumed to be equivalent to the SF Model's estimated trip distribution for the Sunset District. The distribution of work trips was based on data from the 2000 U.S. Census on place of work of residents in the nearby Census Tracts 308, 309, 330, and 331, prorated using the SF Model distribution for the Sunset District and the typical distribution assumed for work trips within San Francisco (60 percent SD-1 and 40 percent combined to SD-2, SD-3, and SD-4). The assumed distribution is summarized in **Table 2**.

#### Mode Split / AVO

The SF Model mode split and AVO information for TAZ 430 were assumed for the Arden Wood project and are summarized in **Table 3**.

#### Inbound / Outbound Split

The SF Model inbound / outbound split for TAZ 430 was assumed for the Arden Wood project and is summarized in **Table 4**.

**Table 1: Arden Wood – Trip Generation Comparison**

Time Period	Trips		Comparison Ratio
	SF Model <sup>(1)</sup>	SF Guidelines <sup>(2)</sup>	
AM Peak Hour	384	482	0.80
PM Peak Hour	503	924	0.54
Daily	6,566	9,333	0.70

Source: SF Guidelines, 2002; SF Model, 2009; AECOM, 2009.

Notes:

<sup>(1)</sup> SF Model trips for TAZ 394.

<sup>(2)</sup> SF Guidelines calculations by AECOM, based on the SF Model land use inputs for TAZ 394.

**Table 2: Arden Wood – Trip Distribution**

Time Period	Trip End							
	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other
<b>Non-Work Trips<sup>(1)</sup></b>								
AM Peak Hour	9.9%	15.9%	22.9%	36.2%	2.7%	1.3%	11.1%	0.0%
PM Peak Hour	8.5%	17.0%	20.9%	40.6%	2.0%	0.9%	10.1%	0.0%
<b>Work Trips<sup>(2)</sup></b>								
AM Peak Hour	45.2%	7.5%	7.5%	15.1%	4.4%	2.2%	18.1%	0.0%
PM Peak Hour	45.2%	7.5%	7.5%	15.1%	3.8%	1.7%	19.2%	0.0%

Source: SF Model, 2009; U.S. Census, Summary File 3, 2000; AECOM, 2009.

Notes:

<sup>(1)</sup> SF Model trip distribution for the Sunset District from neighborhood-aggregated trip tables.

<sup>(2)</sup> 2000 U.S. Census, Summary File 3 for Census Tracts 308, 309, 330, and 331, prorated using the SF Model trip distribution for the Sunset District and the typical 60 / 40 work-trip split for SD-1 versus SD-2, SD-3, and SD-4.

**Table 3: Arden Wood – Mode Split and Average Vehicle Occupancy**

Time Period	Mode				Average Vehicle Occupancy
	Auto	Transit	Walk	Other	
AM Peak Hour	68.2%	18.8%	11.0%	2.1%	1.11
PM Peak Hour	74.8%	13.2%	10.3%	1.6%	1.14

Source: SF Model, 2009.

**Table 4: Arden Wood – Inbound / Outbound Split**

Source	AM Peak Hour		PM Peak Hour	
	In	Out	In	Out
TAZ 430	25.6%	74.4%	59.1%	40.9%

Source: SF Model, 2009.



### **Stonestown Village (TAZ 918)**

TAZ 918 primarily contains the existing Stonestown Galleria shopping center. Since the proposed Stonestown Village would have similar visitor-serving characteristics, it was assumed that the travel demand information from the SF Model would be appropriate for the assessment of this new development.

#### Trip Generation

**Table 5** presents a comparison of the weekday AM peak hour, weekday PM peak hour, and daily trip generation results from the SF Model and the *SF Guidelines* for the 2030 Build land use program for TAZ 918. As the table indicates, the SF Model's peak hour trip generation for TAZ 918 is approximately 81 percent in the weekday AM peak hour and 38 percent in the weekday PM peak hour of the *SF Guidelines* trip generation estimate.

To account for the difference in trip generation values, it is proposed that an average between the two values be used for the assessment of the Stonestown Village project. This would result in a reduction in trips as estimated from the *SF Guidelines* of 10 percent in the weekday AM peak hour and 31 percent in the weekday PM peak hour—in other words, the proposed trip generation would be 90 percent of the *SF Guidelines* totals in the AM peak hour and 69 percent in the PM peak hour. This factor would be applied to the *SF Guidelines* trip generation for the proposed Stonestown Village project.

#### Trip Distribution

The SF Model trip distribution for TAZ 918 was assumed for the Stonestown Village project, and is summarized in **Table 6**.

#### Mode Split / AVO

The SF Model mode split and AVO information for TAZ 918 were assumed for the Stonestown Village project and are summarized in **Table 7**.

#### Inbound / Outbound Split

The SF Model inbound / outbound split for TAZ 918 was assumed for the Stonestown Village project and is summarized in **Table 8**.

#### Internal Trip Capture

As stated previously, the Stonestown Village project is proposed on a site with a large mix of uses (Stonestown Galleria) and thus, a high potential for trips with origins and destinations within the site. The *SF Guidelines* suggests a weekday PM peak hour trip generation rate of 13.5 trips per 1,000 gross square feet of space for general retail uses. However, ITE's *Trip Generation* recommends a weekday PM peak hour trip generation rate of 3.73 trips per 1,000 square feet of gross leasable area for shopping centers. The substantial difference between the two sources suggests that use of the "general retail" trip generation rates provided by the *SF Guidelines* likely does not consider the effect of internal trip capture among the various retail and service uses provided within a typical shopping center. Therefore, the SF Model outputs for internal / external split were assumed in order to account for the effect of internal trip capture both within the proposed Stonestown Village project and between the Stonestown Village project and the existing Stonestown Galleria.

The SF Model internal / external split for TAZ 918 was assumed for the Stonestown Village project and is summarized in **Table 9**.

**Table 5: Stonestown Village – Trip Generation Comparison**

Time Period	Trips		Comparison Ratio
	SF Model <sup>(1)</sup>	SF Guidelines <sup>(2)</sup>	
AM Peak Hour	3,682	4,555	0.81
PM Peak Hour	4,375	11,633	0.38
Daily	54,980	128,034	0.43

Source: SF Guidelines, 2002; SF Model, 2009; AECOM, 2009.

Notes:

<sup>(1)</sup> SF Model trips for TAZ 918.

<sup>(2)</sup> SF Guidelines calculations by AECOM, based on the SF Model land use inputs for TAZ 918.

**Table 6: Stonestown Village – Trip Destination**

Time Period	Trip End							
	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other
AM Peak Hour	4.0%	12.6%	20.8%	39.9%	3.4%	3.0%	9.8%	6.5%
PM Peak Hour	2.7%	12.1%	21.6%	43.6%	2.7%	1.7%	10.1%	5.5%

Source: SF Model, 2009.

**Table 7: Stonestown Village – Mode Split and Average Vehicle Occupancy**

Time Period	Mode				Average Vehicle Occupancy
	Auto	Transit	Walk	Other	
AM Peak Hour	75.8%	15.6%	7.4%	1.2%	1.11
PM Peak Hour	83.8%	8.3%	6.6%	1.3%	1.09

Source: SF Model, 2009.

**Table 8: Stonestown Village – Inbound / Outbound Split**

Source	AM Peak Hour		PM Peak Hour	
	In	Out	In	Out
TAZ 918	67.6%	32.4%	42.2%	57.8%

Source: SF Model, 2009.

**Table 9: Stonestown Village – Internal Trip Capture**

Source	AM Peak Hour		PM Peak Hour	
	Internal	External	Internal	External
TAZ 918	6.6%	93.4%	11.3%	88.7%

Source: SF Model, 2009.

### **San Francisco State University (TAZ 917)**

For the assessment of the proposed SFSU expansion, the travel characteristics were primarily based from the SF Model (TAZ 917 is primarily the existing SFSU campus) and from the Campus Master Plan, which evaluated the proposed expansion. Additional adjustments were made after comparison against additional travel demand calculations for the project from the Cambon Draft TIA.

#### Trip Generation

**Table 10** presents a comparison of the weekday AM peak hour, weekday PM peak hour, and daily trip generation results from the SF Model and the *SF Guidelines* for the 2030 Build land use program for TAZ 917. As the table indicates, the SF Model's peak hour trip generation for TAZ 917 is approximately 56 percent in the weekday AM peak hour and 61 percent in the weekday PM peak hour of the *SF Guidelines* trip generation estimate. Although the total daily trips are similar, the *SF Guidelines* approach results in a higher percentage of trips in the peak hours.

To account for the difference in trip generation values, it is proposed that an average between the two values be used for the assessment of the SFSU project. This would result in a reduction in trips as estimated from the *SF Guidelines* of 22 percent in the weekday AM peak hour and 20 percent in the weekday PM peak hour—in other words, the proposed trip generation would be 78 percent of the *SF Guidelines* totals in the AM peak hour and 80 percent in the PM peak hour. This factor would be applied to the *SF Guidelines* trip generation for the proposed SFSU project.

#### Trip Distribution

The SF Model's estimated trip distribution for TAZ 917 was compared against the trip distribution presented in the *SFSU Campus Master Plan EIR* (2007). These two data sets are summarized in **Table 11**. Because the trip distribution presented in the *SFSU Campus Master Plan EIR* was not aggregated by Superdistrict, the estimated trip distribution to each Superdistrict was developed based on general traffic patterns and the location of the campus. As the table indicates, the SF Model estimates a higher share to SD-1, SD-3, and "Other" (i.e., out-of-region) trips, but a lower share to SD-2 and SB trips, when compared against the Superdistrict-aggregated *Master Plan EIR* distribution. For the purposes of the corridor study, the *Master Plan EIR* distribution is assumed for the SFSU project because it was developed based on existing traffic patterns in the area.

#### Mode Split / AVO

The SF Model's estimated mode split and AVO for TAZ 917 were compared against empirical mode split and AVO data from SFSU's *2008 Transportation Survey* conducted by Nelson \ Nygaard Consulting Associates. These two data sets are summarized in **Table 12**. As the table indicates, there are substantial differences between the mode split and AVO predicted by the SF Model and the empirical data. After a preliminary trip generation comparison for the Campus Master Plan project against calculations from the Campus Master Plan EIR and Cambon Draft TIA, an average of the mode shares and AVO between the SF Model and *2008 Transportation Survey* was assumed for SFSU, which is also summarized in **Table 12**.

#### Inbound / Outbound Split

The SF Model inbound / outbound split for TAZ 917 was assumed for the SFSU project and is summarized in **Table 13**.



#### Internal / External Split

The SF Model internal / external split for TAZ 917 was compared against empirical data on place of residence and trip linking characteristics from SFSU's 2008 *Transportation Survey*. Table 14 summarizes the SF Model internal / external split and Table 15 summarizes data from the 2008 *Transportation Survey*. As the tables indicate, the SF Model's internal split for TAZ 917 is higher than the percentage of the campus population living on-campus. On a given school day, it is generally expected that this would hold true, as students, faculty, and staff may visit multiple locations (e.g., classrooms, offices, libraries, cafeterias, etc.). Therefore, the SF Model internal / external split for TAZ 917 was assumed for the SFSU project.

**Table 10: SFSU – Trip Generation Comparison**

Time Period	Trips		Comparison Ratio
	SF Model <sup>(1)</sup>	ITE <sup>(2)</sup>	
AM Peak Hour	2,590	4,604	0.56
PM Peak Hour	2,620	4,302	0.61
Daily	35,206	35,200	1.00

Source: SF Guidelines, 2002; SF Model, 2009; AECOM, 2009.

Notes:

<sup>(1)</sup> SF Model trips for TAZ 917.

<sup>(2)</sup> ITE calculations by AECOM, based on the SF Model land use inputs for TAZ 917.

**Table 11: SFSU – Trip Distribution Comparison**

Source	Trip End							
	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other
SF Model (TAZ 917)								
AM Peak Hour	14.1%	13.4%	18.9%	30.8%	4.4%	3.6%	9.3%	5.6%
PM Peak Hour	11.6%	13.2%	19.4%	33.2%	4.1%	3.4%	9.4%	5.7%
SFSU Campus Master Plan EIR	6%	20%	17%	35%	3%	2%	16%	1%

Source: SFSU Campus Master Plan EIR, 2007; SF Model, 2009; AECOM, 2009.

**Table 12: SFSU – Mode Split and Average Vehicle Occupancy Comparison**

Source	Mode				Average Vehicle Occupancy
	Auto	Transit	Walk	Other	
SF Model (TAZ 917)					
AM Peak Hour	61.7%	19.0%	17.6%	1.8%	1.10
PM Peak Hour	67.1%	12.4%	18.7%	1.8%	1.11
2008 Transportation Survey	33.3%	49.1%	12.3%	5.3%	1.16
Adjusted Mode Split and AVO					
AM Peak Hour	47.5%	34.0%	14.9%	3.5%	1.13
PM Peak Hour	50.2%	30.8%	15.5%	3.6%	1.14

Source: SFSU 2008 Transportation Survey Results, Nelson \ Nygaard Consulting Associates, 2008; SF Model, 2009.

**Table 13: SFSU – Inbound / Outbound Split**

Source	AM Peak Hour		PM Peak Hour	
	In	Out	In	Out
TAZ 917	50.9%	49.1%	49.5%	50.5%

Source: SF Model, 2009.

**Table 14: SFSU – Internal / External Split (SF Model)**

Source	AM Peak Hour		PM Peak Hour	
	Internal	External	Internal	External
TAZ 917	19.7%	80.3%	18.2%	81.8%

Source: SF Model, 2009.

**Table 15: SFSU – Place of Residence and Trip Linking**

Trip Characteristic	Share
Place of Residence	
On-Campus	8.3%
Off-Campus	91.7%
Trip Linking (Most Recent Origin in Trip)	
Home	89.4%
Work	4.3%
Brief off-campus trip	3.3%
Other	3.0%

Source: SFSU 2008 Transportation Survey Results, Nelson \ Nygaard Consulting Associates, 2008.

### **77-111 Cambon Drive (TAZ 883)**

Travel demand assumptions for the 77-111 Cambon Drive project were primarily obtained from the Cambon Draft TIA prepared by Fehr + Peers Transportation Consultants in December 2007.

#### Trip Generation

After a preliminary trip generation comparison for the 77-111 Cambon Drive project against calculations from the Cambon Draft TIA, the trip generation from the Cambon Draft TIA was assumed for the 77-111 Cambon Drive project.

#### Trip Distribution

To be consistent with previous transportation analysis conducted for the 77-111 Cambon Drive project, the trip distribution from the Cambon Draft TIA was assumed. The assumed trip distribution by land use and trip type is summarized in **Table 16**. The Cambon Draft TIA assumes that the project would exhibit the same trip distribution characteristics for the weekday AM and PM peak hours.

#### Mode Split / AVO

To be consistent with previous transportation analysis conducted for the 77-111 Cambon Drive project, the mode split and AVO from the Cambon Draft TIA was assumed. The assumed mode split and AVO by land use is summarized in **Table 17**. The Cambon Draft TIA assumes that the project would exhibit the same mode split and AVO characteristics for the weekday AM and PM peak hours.

#### Inbound / Outbound Split

To be consistent with previous transportation analysis conducted for the 77-111 Cambon Drive project, the inbound / outbound split from the Cambon Draft TIA was assumed. The assumed inbound / outbound split is summarized in **Table 18**.



**Table 16: 77-111 Cambon Drive – Trip Distribution**

Time Period	Trip End							
	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other
Residential								
Work	42.7%	9.5%	9.5%	9.5%	9.2%	2.2%	17.4%	0.0%
Non-work	42.7%	9.5%	9.5%	9.5%	9.2%	2.2%	17.4%	0.0%
Retail								
Work	5.4%	10.1%	20.7%	29.8%	9.3%	3.9%	17.0%	3.8%
Non-work	2.0%	12.0%	22.0%	46.0%	2.0%	1.0%	10.0%	5.0%

Source: Cambon Mixed Use Project Transportation Impact Analysis, Fehr + Peers, 2007.

**Table 17: 77-111 Cambon Drive – Mode Split and Average Vehicle Occupancy**

Land Use	Mode				Average Vehicle Occupancy
	Auto	Transit	Walk	Other	
Residential	62.7%	30.2%	3.0%	4.1%	1.26
Retail	76.8%	6.6%	15.9%	0.7%	1.80
Total	68.9%	18.4%	9.9%	2.7%	1.51

Source: Cambon Mixed Use Project Transportation Impact Analysis, Fehr + Peers, 2007.

**Table 18: 77-111 Cambon Inbound / Outbound Split**

Source	AM Peak Hour		PM Peak Hour	
	In	Out	In	Out
Cambon Draft TIA	40.0%	60.0%	57.4%	42.6%

Source: Cambon Mixed Use Project Transportation Impact Analysis, Fehr + Peers, 2007.

### **800 Brotherhood Way (TAZ 884)**

Travel demand assumptions for the 800 Brotherhood Way project were primarily obtained from the 800 Brotherhood Study prepared by CHS Consulting Group in May 2004, with adjustments based on outputs from the SF Model for TAZ 884, which contains the project site.

#### Trip Generation

After a preliminary trip generation comparison for the 800 Brotherhood Way project against calculations from the 800 Brotherhood Study, the trip generation from the 800 Brotherhood Study was assumed for the 800 Brotherhood Way project.

#### Trip Distribution

To be consistent with previous transportation analysis conducted for the 800 Brotherhood Way project, the trip distribution from the 800 Brotherhood Study was assumed. The assumed trip distribution is summarized in **Table 19**. The 800 Brotherhood Study assumes that the project would exhibit the same trip distribution characteristics for the weekday AM and PM peak hours.

#### Mode Split / AVO

The trip generation presented in the 800 Brotherhood Study assumes that the project would exhibit a 100 percent auto share and would generate no transit trips due to poor transit service in the project area. For the purposes of the 19th Avenue Corridor Study, the SF Model mode split and AVO information for TAZ 884 were assumed instead and are summarized in **Table 20**.

#### Inbound / Outbound Split

To be consistent with previous transportation analysis conducted for the 800 Brotherhood Way project, the inbound / outbound split from the 800 Brotherhood Study was assumed. The assumed inbound / outbound split is summarized in **Table 21**.

**Table 19: 800 Brotherhood Way – Trip Distribution**

Time Period	Trip End							
	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other
AM Peak Hour	22.9%	22.6%	22.6%	22.6%	3.1%	3.1%	3.1%	0.0%
PM Peak Hour	22.9%	22.6%	22.6%	22.6%	3.1%	3.1%	3.1%	0.0%

Source: 800 Brotherhood Way Project Transportation Study, CHS Consulting Group, 2004.

**Table 20: 800 Brotherhood Way – Mode Split and Average Vehicle Occupancy**

Time Period	Mode				Average Vehicle Occupancy
	Auto	Transit	Walk	Other	
AM Peak Hour	70.3%	10.9%	17.0%	1.8%	1.14
PM Peak Hour	69.1%	7.3%	22.3%	1.3%	1.16

Source: SF Model, 2009.

**Table 21: 800 Brotherhood Way – Inbound / Outbound Split**

Source	AM Peak Hour		PM Peak Hour	
	In	Out	In	Out
800 Brotherhood Study	19.5%	80.5%	66.7%	33.3%

Source: 800 Brotherhood Way Project Transportation Study, CHS Consulting Group, 2004.



## **700 Font Boulevard – School of the Arts Site (TAZ 917)**

### Trip Generation

Since TAZ 917 includes SFSU, data cannot be used directly from this TAZ to accurately assess the trip generation of the 700 Font Boulevard project. Therefore, data from the adjacent TAZ 52 was used instead. **Table 22** presents a comparison of the weekday AM peak hour, weekday PM peak hour, and daily trip generation results from the SF Model and the *SF Guidelines* for the 2030 Build land use program for TAZ 52. As the table indicates, the SF Model's peak hour trip generation for TAZ 52 is approximately 40 percent in both the weekday AM and PM peak hours of the *SF Guidelines* trip generation estimate.

To account for the difference in trip generation values, it is proposed that an average between the two values be used for the assessment of the 700 Font Boulevard project. This would result in a reduction in trips as estimated from the *SF Guidelines* of 30 percent for both the weekday AM and PM peak hours—in other words, the proposed trip generation would be 70 percent of the *SF Guidelines* totals in the AM and PM peak hours. This factor would be applied to the *SF Guidelines* trip generation for the proposed 700 Font Boulevard project.

### Trip Distribution

The 700 Font Boulevard project trip distribution for non-work trips was assumed to be equivalent to the SF Model's estimated trip distribution for the Sunset District. The distribution of work trips was based on data from the 2000 U.S. Census on place of work of residents in the nearby Census Tracts 309, 332.01, and 332.02, prorated using the SF Model distribution for the Sunset District and the typical distribution assumed for work trips within San Francisco (60 percent SD-1 and 40 percent combined to SD-2, SD-3, and SD-4). The assumed distribution is summarized in **Table 23**.

### Mode Split / AVO

The SF Model mode split and AVO information for TAZ 52 were assumed for the 700 Font Boulevard project and are summarized in **Table 24**.

### Inbound / Outbound Split

The SF Model inbound / outbound split for TAZ 52 was assumed for the 700 Font Boulevard project and is summarized in **Table 25**.

**Table 22: 700 Font Boulevard – Trip Generation Comparison**

Time Period	Trips		Comparison Ratio
	SF Model <sup>(1)</sup>	SF Guidelines <sup>(2)</sup>	
AM Peak Hour	975	2,422	0.40
PM Peak Hour	1,102	2,783	0.40
Daily	14,144	19,066	0.74

Source: SF Guidelines, 2002; SF Model, 2009; AECOM, 2009.

**Notes:**

<sup>(1)</sup> SF Model trips for TAZ 52.

<sup>(2)</sup> SF Guidelines calculations by AECOM, based on the SF Model land use inputs for TAZ 52.

**Table 23: 700 Font Boulevard – Trip Distribution**

Time Period	Trip End							
	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other
<b>Non-Work Trips<sup>(1)</sup></b>								
AM Peak Hour	9.9%	15.9%	22.9%	36.2%	2.7%	1.3%	11.1%	0.0%
PM Peak Hour	8.5%	17.0%	20.9%	40.6%	2.0%	0.9%	10.1%	0.0%
<b>Work Trips<sup>(2)</sup></b>								
AM Peak Hour	44.5%	7.4%	7.4%	14.9%	4.6%	2.3%	18.9%	0.0%
PM Peak Hour	44.5%	7.4%	7.4%	14.9%	4.0%	1.7%	20.1%	0.0%

Source: SF Model, 2009; U.S. Census, Summary File 3, 2000; AECOM, 2009.

**Notes:**

<sup>(1)</sup> SF Model trip distribution for the Sunset District from neighborhood-aggregated trip tables.

<sup>(2)</sup> 2000 U.S. Census, Summary File 3 for Census Tracts 309, 332.01, and 332.02, prorated using the SF Model trip distribution for the Sunset District and the typical 60 / 40 work-trip split for SD-1 versus SD-2, SD-3, and SD-4.

**Table 24: 700 Font Boulevard – Mode Split and Average Vehicle Occupancy**

Time Period	Mode				Average Vehicle Occupancy
	Auto	Transit	Walk	Other	
AM Peak Hour	59.7%	20.1%	19.0%	1.2%	1.18
PM Peak Hour	63.6%	12.8%	22.1%	1.5%	1.18

Source: SF Model, 2009.

**Table 25: 700 Font Boulevard – Inbound / Outbound Split**

Source	AM Peak Hour		PM Peak Hour	
	In	Out	In	Out
TAZ 52	33.5%	66.5%	57.4%	42.6%

Source: SF Model, 2009.

### **Balboa Park Better Neighborhoods Plan**

The travel demand calculations from the *Balboa Park Station Area Plan Transportation Study* prepared by AECOM (formerly Kolve Engineering) in December 2006 were assumed for the Balboa Park project. It should be noted that only the Kragen Site is considered for specific evaluation as an area project in this corridor study. The other subareas and sites proposed for development in the Balboa Park Better Neighborhoods Plan have been included in the SF Model's 2030 land use files and are considered as "background" projects.

#### Trip Generation

**Table 26** summarizes the trip generation assumptions for the Balboa Park project, which are based on the *SF Guidelines*. Since the study only evaluated conditions for the weekday PM peak hour, trip generation ratios for the weekday AM peak hour compared to the weekday PM peak hour were obtained from ITE's *Trip Generation*.

#### Trip Distribution

**Table 27** summarizes the trip distribution assumptions for the Balboa Park project. Trip distribution for the weekday AM peak hour were developed by assuming the distributions by land use and trip type were the same as the weekday PM peak hour, but adjusting the trip generation rates for each land use as described above.

#### Mode Split / AVO

**Table 28** summarizes the mode split and AVO assumptions for the Balboa Park project.

#### Inbound / Outbound Split

**Table 29** summarizes the inbound / outbound split assumptions for the Balboa Park project.



**Table 26: Balboa Park – Trip Generation**

<b>Time Period</b>	<b>Trips<sup>(1)</sup></b>
AM Peak Hour	462
PM Peak Hour	983
Daily	11,190

Source: *Balboa Park Station Area Plan Transportation Study*, Korve Engineering, 2006; AECOM, 2009.

Notes:

<sup>(1)</sup> SF Guidelines calculations by Korve Engineering, based on the Kragen Site land use program.

**Table 27: Balboa Park – Trip Distribution**

<b>Time Period</b>	<b>Trip End</b>							
	<b>SD-1</b>	<b>SD-2</b>	<b>SD-3</b>	<b>SD-4</b>	<b>EB</b>	<b>NB</b>	<b>SB</b>	<b>Other</b>
AM Peak Hour	27.4%	8.0%	35.5%	6.0%	6.4%	2.3%	11.6%	2.9%
PM Peak Hour	17.9%	8.3%	46.8%	5.5%	5.0%	2.2%	10.6%	3.7%

Source: *Balboa Park Station Area Plan Transportation Study*, Korve Engineering, 2006.

**Table 28: Balboa Park – Mode Split and Average Vehicle Occupancy**

<b>Time Period</b>	<b>Mode</b>				<b>Average Vehicle Occupancy</b>
	<b>Auto</b>	<b>Transit</b>	<b>Walk</b>	<b>Other</b>	
AM Peak Hour	62.8%	21.3%	14.0%	1.9%	1.45
PM Peak Hour	62.1%	17.0%	19.0%	1.9%	1.60

Source: *Balboa Park Station Area Plan Transportation Study*, Korve Engineering, 2006; AECOM, 2009.

**Table 29: Balboa Park – Inbound / Outbound Split**

<b>Source</b>	<b>AM Peak Hour</b>		<b>PM Peak Hour</b>	
	<b>In</b>	<b>Out</b>	<b>In</b>	<b>Out</b>
Balboa Park Station Area Plan Transportation Study	27.1%	72.9%	53.0%	47.0%

Source: *Balboa Park Station Area Plan Transportation Study*, Korve Engineering, 2006; AECOM, 2009.

AECOM

2101 Webster Street, Suite 1900, Oakland, CA 94612

T 510.622.6600 F 510.834.5220

## Memorandum

---

Date: September 9, 2009  
To: Bill Wycko, San Francisco Planning Department  
From: Tim Erney / Ryan Niblock  
Subject: 19th Avenue Corridor Study – Trip Generation for Non-Parkmerced Development

---

This memorandum summarizes the finalized trip generation for non-Parkmerced development, based on the assumptions summarized in the Non-Parkmerced Assumptions Memo dated September 9, 2009<sup>(1)</sup>. These trip generation numbers represent the finalized person-trips and vehicle-trips to be assumed for non-Parkmerced development in the traffic and transportation analyses to be conducted as part of the 19th Avenue Corridor Study.

### Trip Generation

**Table 1** summarizes the assumed trip generation for non-Parkmerced development projects for the weekday AM and PM peak hours.

---

<sup>(1)</sup> 19th Avenue Corridor Study – Proposed Travel Demand Analysis Assumptions for Non-Parkmerced Development (Final), AECOM (September 9, 2009).

Table 1: Trip Generation for Non-Parkmerced Development

Project	Weekday AM Peak Hour					Weekday PM Peak Hour						
	Person-Trips by Mode					Vehicle Trips	Person-Trips by Mode					Vehicle Trips
	Auto	Transit	Walk	Bike / Other	Total		Auto	Transit	Walk	Bike / Other	Total	
Inbound												
Arden Wood	25	7	4	1	36	22	72	13	10	2	96	63
Stonestown Village	298	66	29	5	398	269	637	71	50	11	769	584
SFSU (Campus Master Plan)	374	268	118	28	788	331	365	224	113	26	727	321
77-111 Cambon Drive	147	43	23	6	220	97	188	62	33	9	292	124
800 Brotherhood Way	34	5	8	1	49	30	145	15	47	3	210	125
700 Font Boulevard	76	25	24	2	127	64	135	27	47	3	212	114
Balboa Park (Kragen Site)	77	15	25	2	119	42	323	95	76	10	503	206
Outbound												
Arden Wood	71	20	11	2	105	64	50	9	7	1	67	44
Stonestown Village	143	31	14	2	191	129	872	97	69	15	1,053	800
SFSU (Campus Master Plan)	361	259	113	27	760	319	372	228	115	26	741	328
77-111 Cambon Drive	219	65	35	10	328	145	139	46	25	7	217	92
800 Brotherhood Way	141	22	34	4	200	124	73	8	23	1	105	63
700 Font Boulevard	150	51	48	3	251	127	100	20	35	2	157	85
Balboa Park (Kragen Site)	213	84	28	6	331	157	287	72	76	9	445	175

Source: SF Guidelines, 2002;

SF Model, 2009;

2000 U.S. Census, Summary File 3: Place of Work for Workers 16 Years and Over – State and County Level, 2000;

SFSU 2008 Transportation Survey; Nelson \ Nygaard Consulting Associates, 2008;

Campus Master Plan Environmental Impact Report (Final), San Francisco State University, URS Corporation, 2007;

Cambon Mixed Use Project Transportation Impact Analysis, Fehr + Peers, 2007;

800 Brotherhood Way Project Transportation Study, CHS Consulting Group, 2004;

Balboa Park Station Area Plan Transportation Study, Korve Engineering, 2006;

AECOM, 2009.

Notes:

All trips are external.



## **APPENDIX D. INTERSECTION LANE GEOMETRY AND VOLUMES**

---



## Appendix D

### Intersection Lane Geometry and Volumes



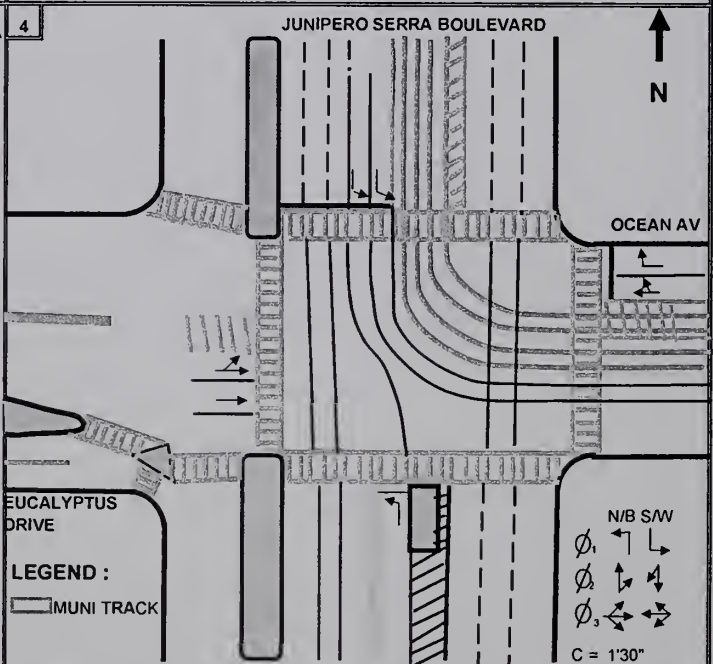
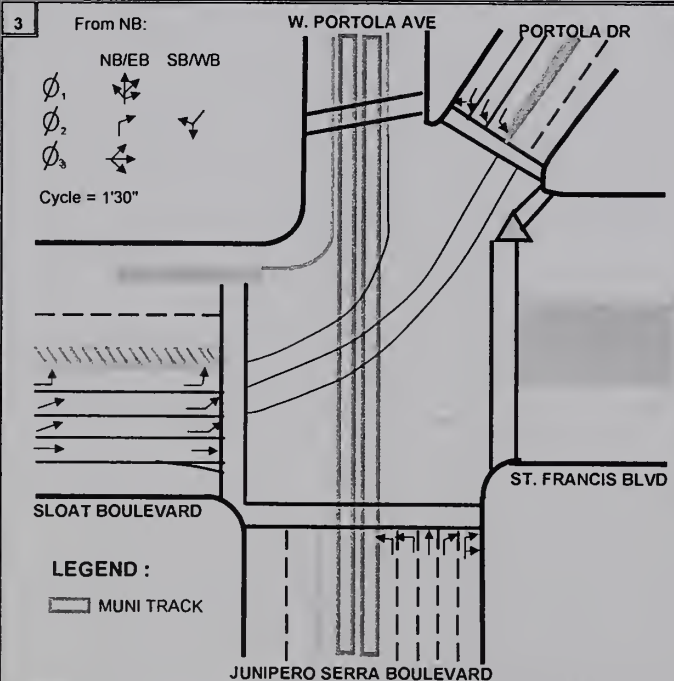
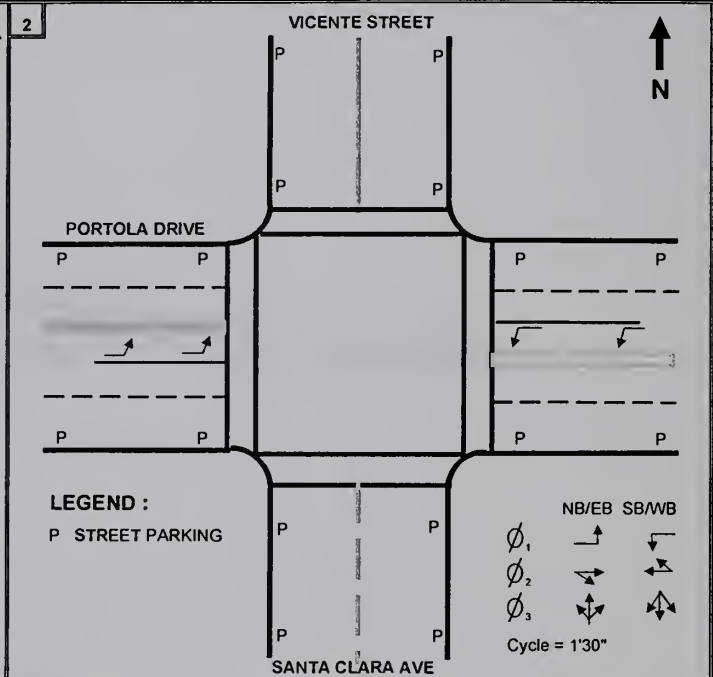
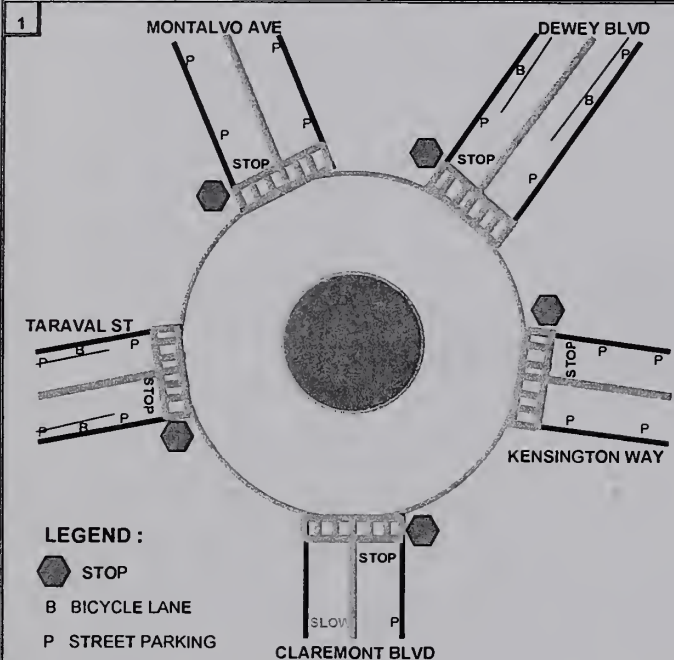
# BAYMETRICS

## INTERSECTION GEOMETRY & TRAFFIC CONTROL PLAN

PROJECT: 19TH AVENUE CORRIDOR STUDY

JURISDICTION: SAN FRANCISCO

DATE: 2/3/2009 TUESDAY



TELEPHONE: (510) 232 - 1271

FAX: (510) 232 - 1272

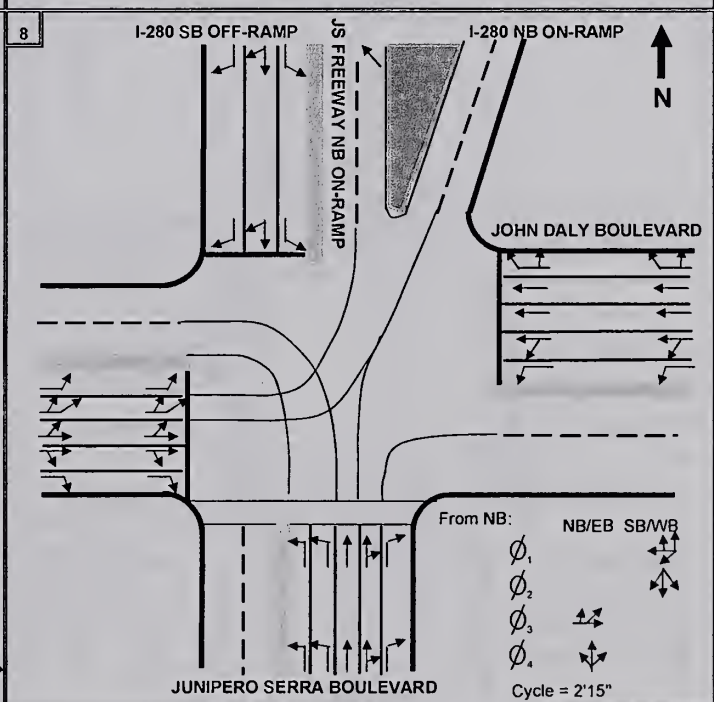
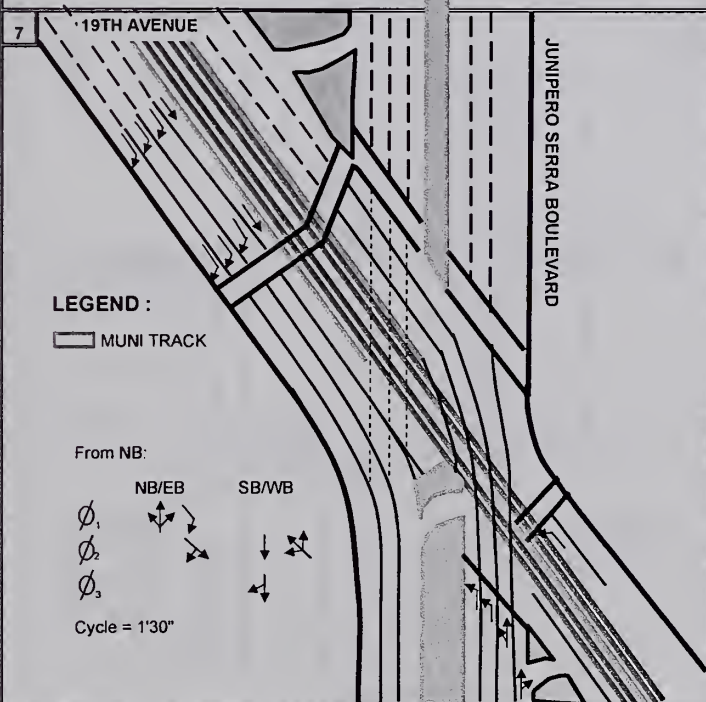
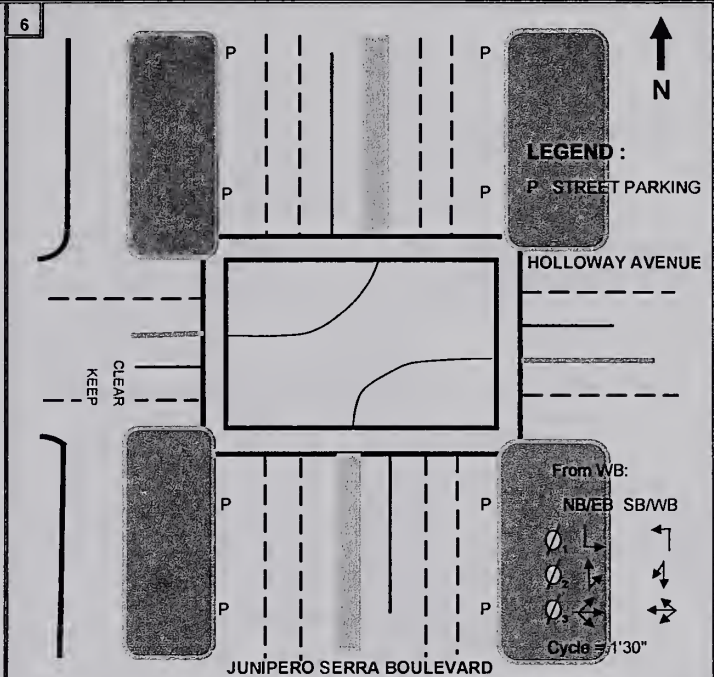
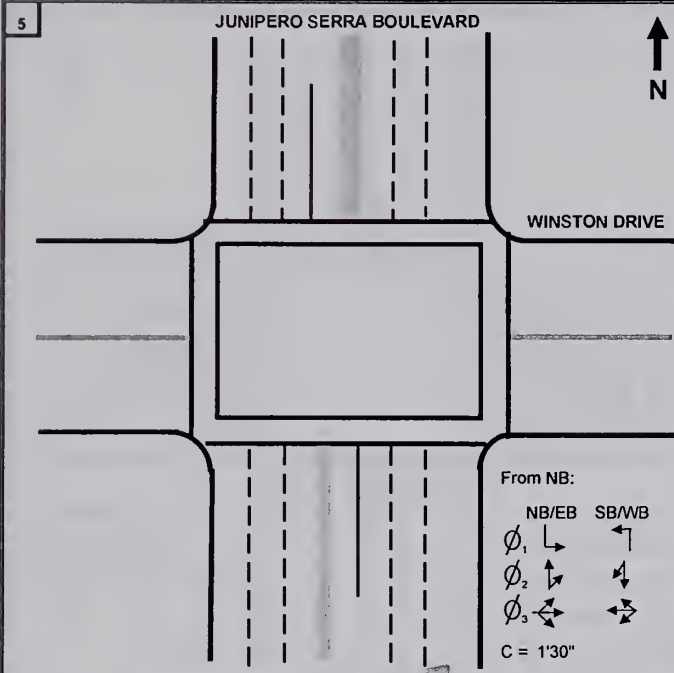
# BAYMETRICS

## INTERSECTION GEOMETRY & TRAFFIC CONTROL PLAN

PROJECT: 19TH AVENUE CORRIDOR STUDY

JURISDICTION: SAN FRANCISCO

DATE: 2/3/2009 TUESDAY



TELEPHONE: (510) 232 - 1271

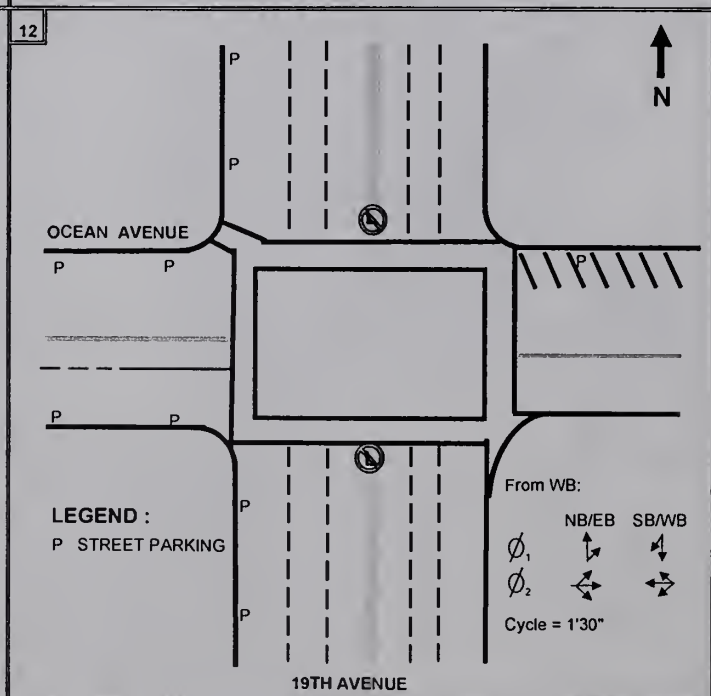
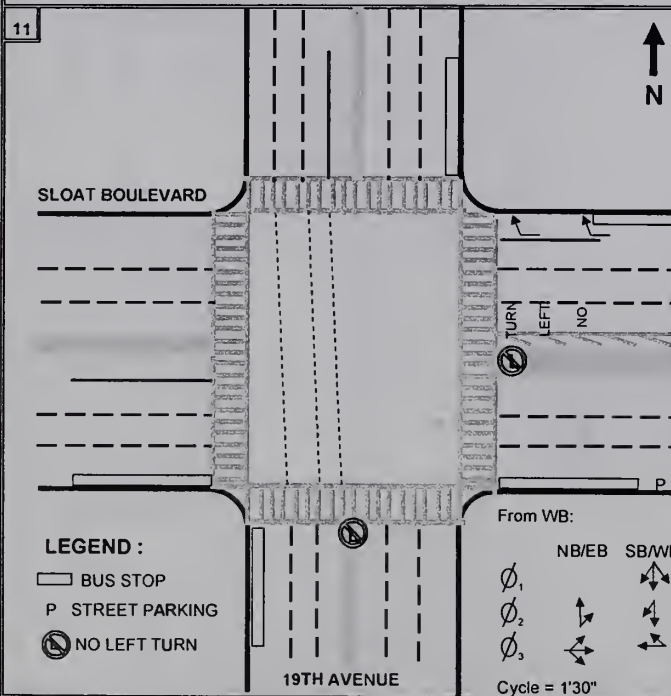
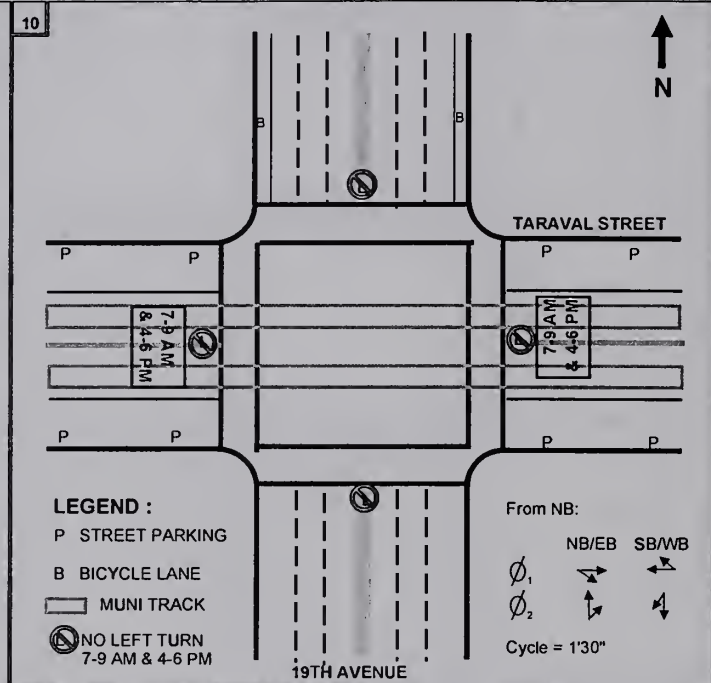
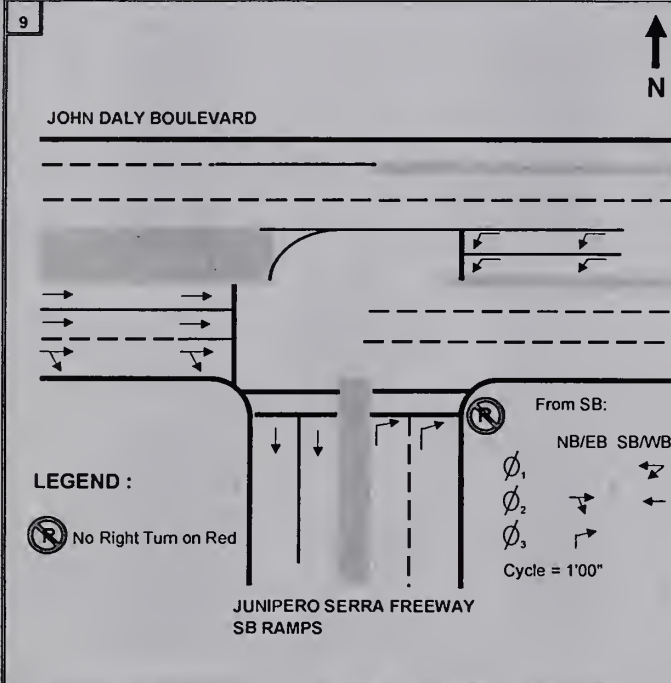
FAX: (510) 232 - 1272

# BAYMETRICS

## INTERSECTION GEOMETRY & TRAFFIC CONTROL PLAN

JURISDICTION: SAN FRANCISCO

DATE: 2/3/2009 TUESDAY



TELEPHONE: (510) 232 - 1271

FAX: (510) 232 - 1272



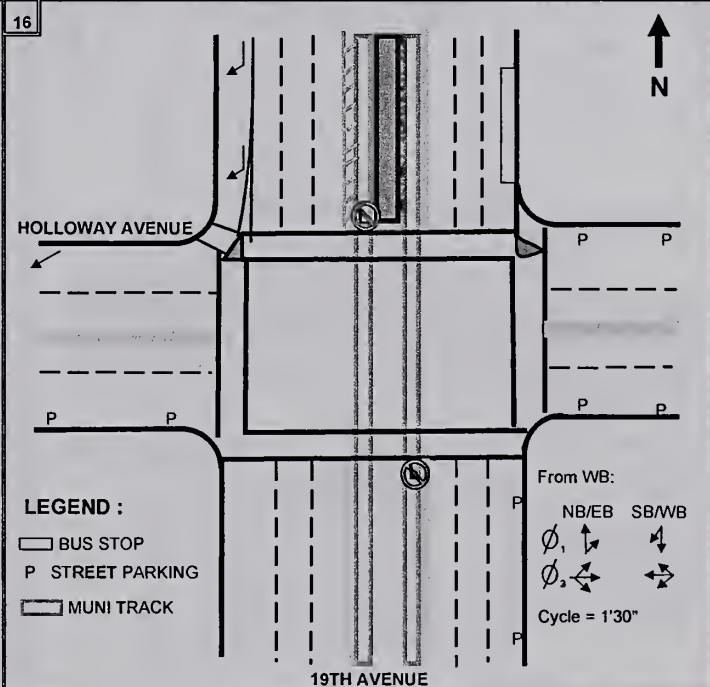
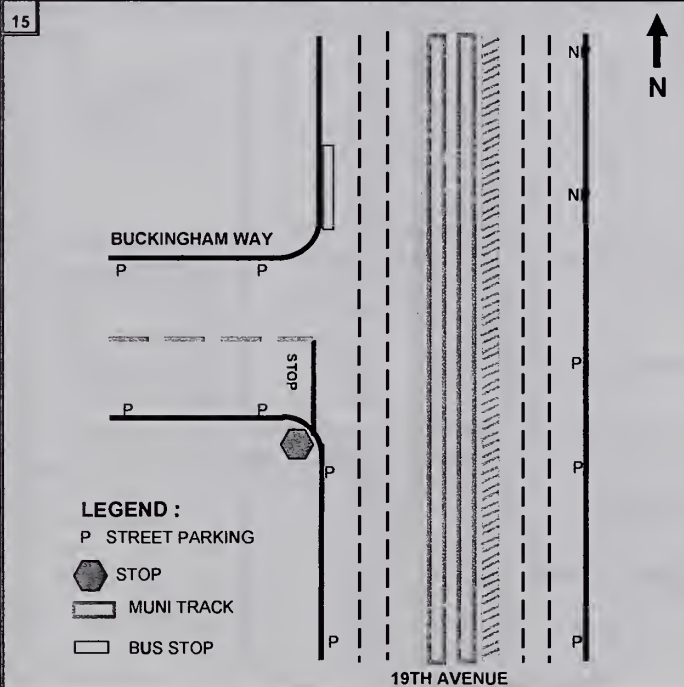
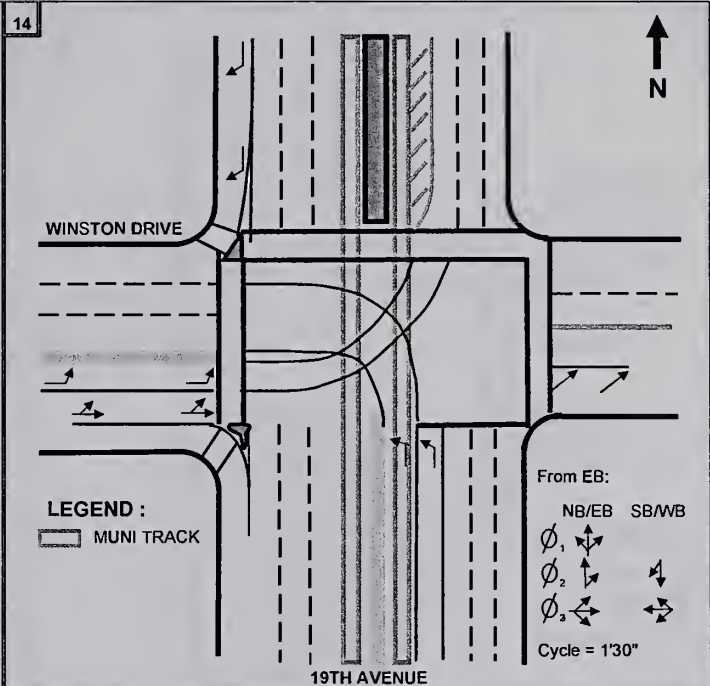
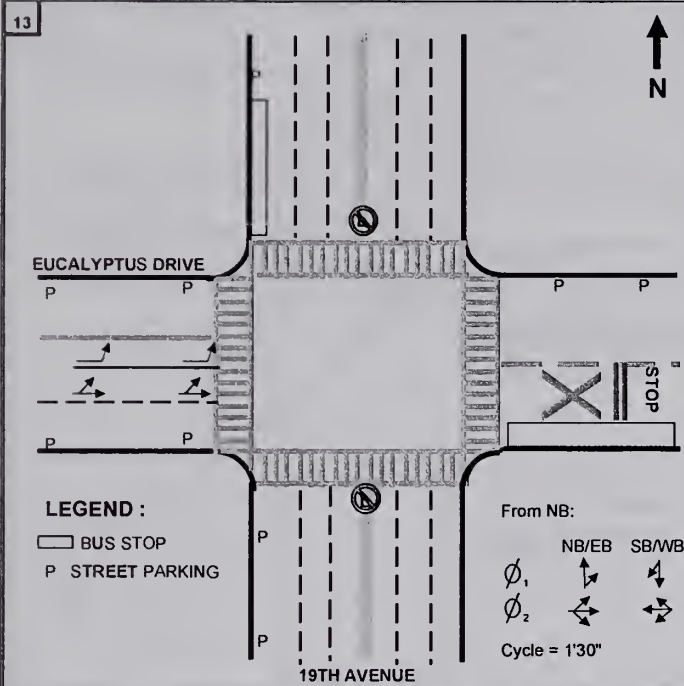
# BAYMETRICS

## INTERSECTION GEOMETRY & TRAFFIC CONTROL PLAN

PROJECT: 19TH AVENUE CORRIDOR STUDY

JURISDICTION: SAN FRANCISCO

DATE: 2/3/2009 TUESDAY



TELEPHONE: (510) 232 - 1271

FAX: (510) 232 - 1272

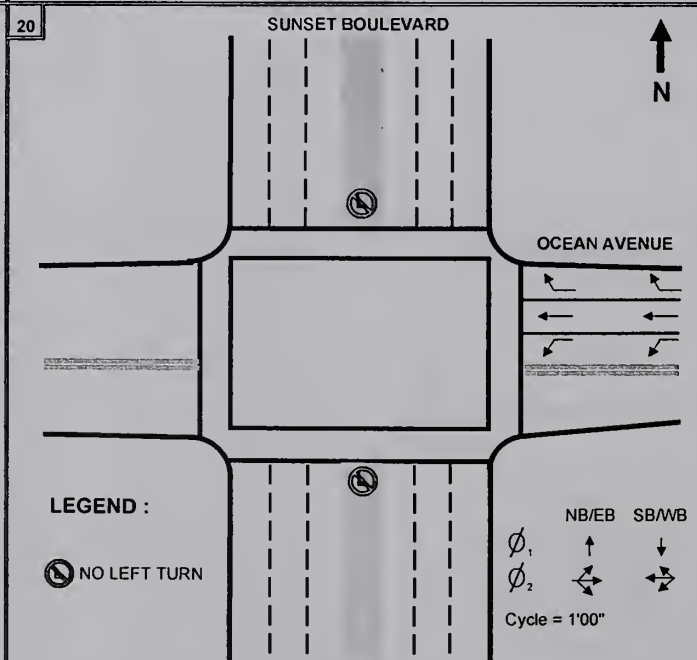
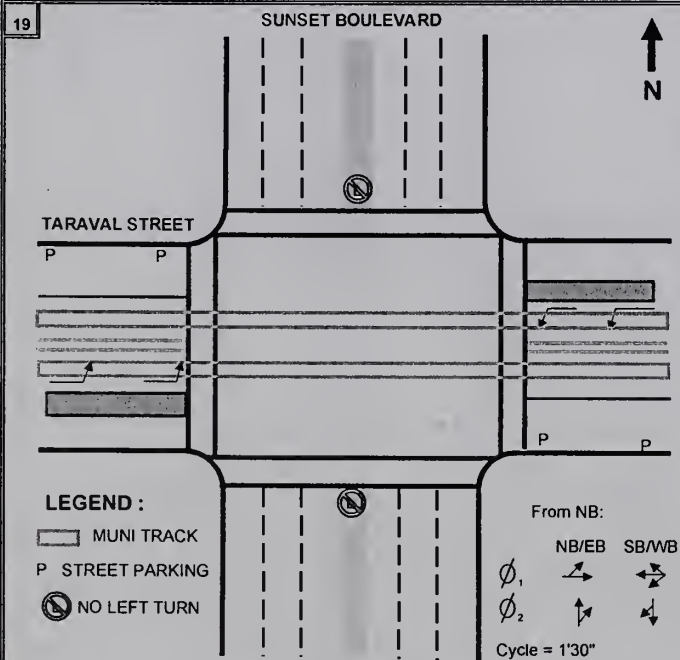
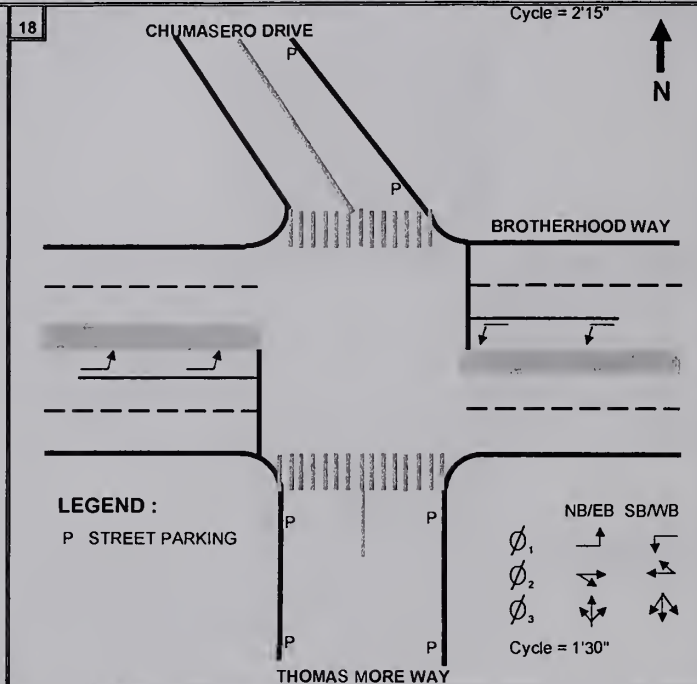
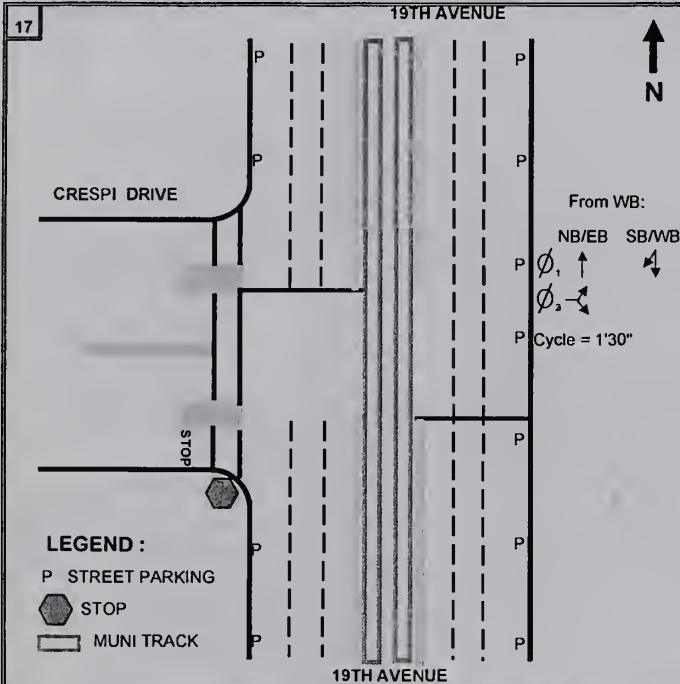
# BAYMETRICS

## INTERSECTION GEOMETRY & TRAFFIC CONTROL PLAN

PROJECT: 19TH AVENUE CORRIDOR STUDY

JURISDICTION: SAN FRANCISCO

DATE: 2/3/2009 TUESDAY



TELEPHONE: (510) 232 - 1271

FAX: (510) 232 - 1272

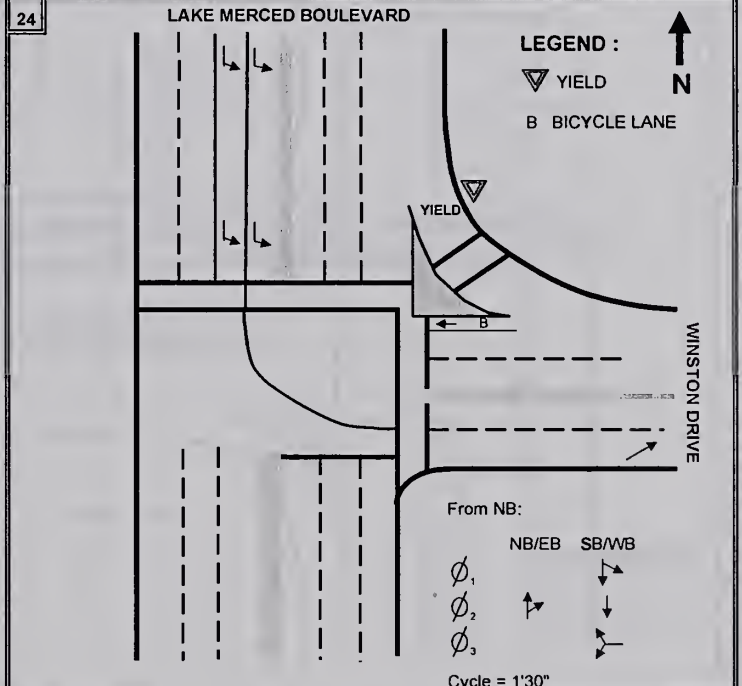
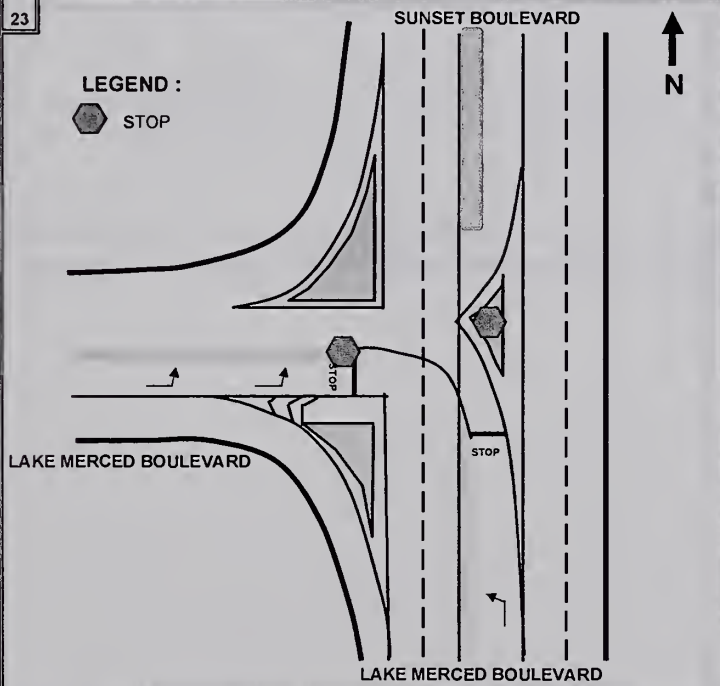
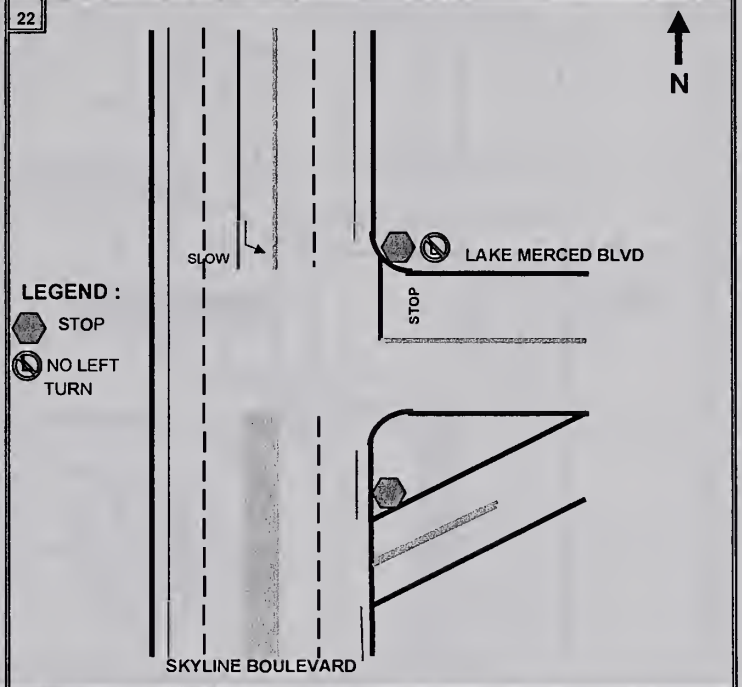
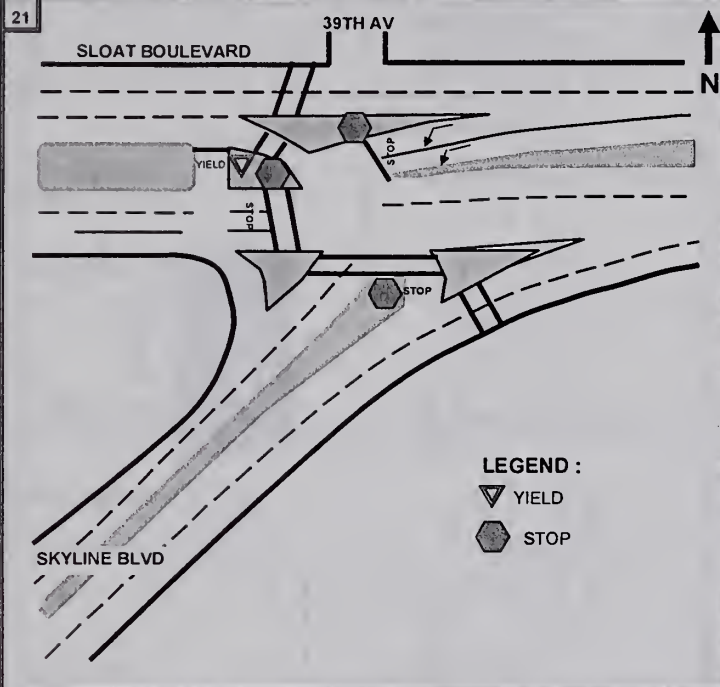
# BAYMETRICS

## INTERSECTION GEOMETRY & TRAFFIC CONTROL PLAN

PROJECT: 19TH AVENUE CORRIDOR STUDY

JURISDICTION: SAN FRANCISCO

DATE: 2/3/2009 TUESDAY



TELEPHONE: (510) 232 - 1271

FAX: (510) 232 - 1272



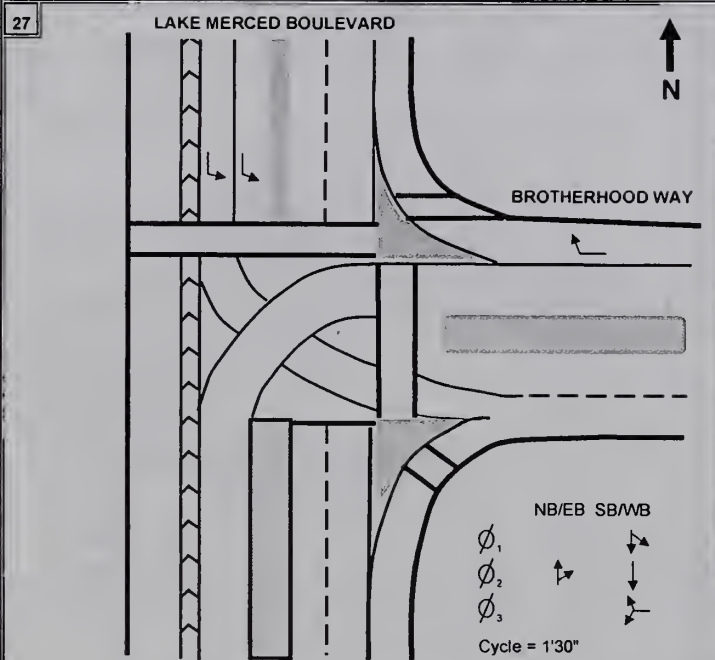
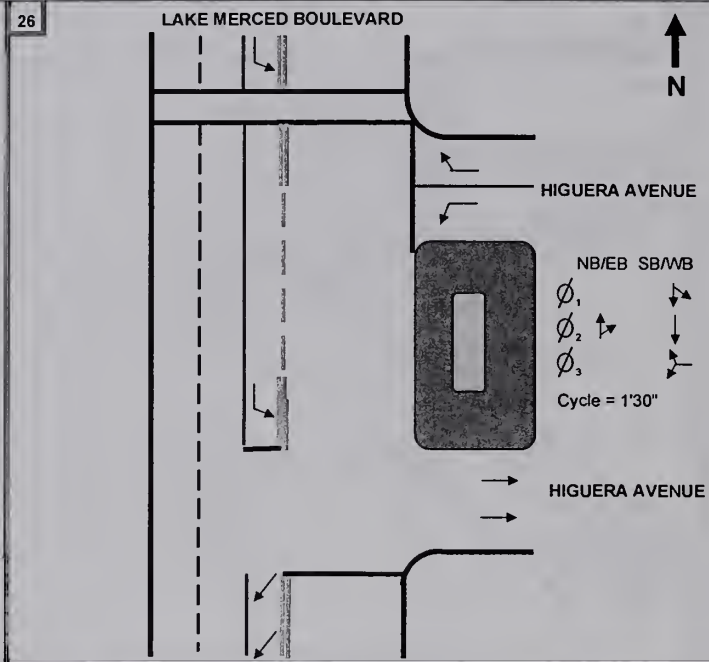
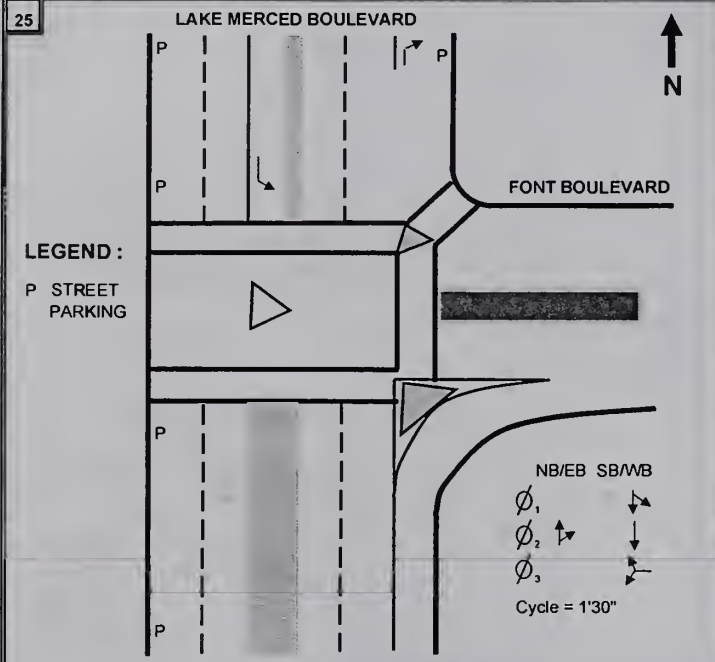
# BAYMETRICS

## INTERSECTION GEOMETRY & TRAFFIC CONTROL PLAN

PROJECT: 19TH AVENUE CORRIDOR STUDY

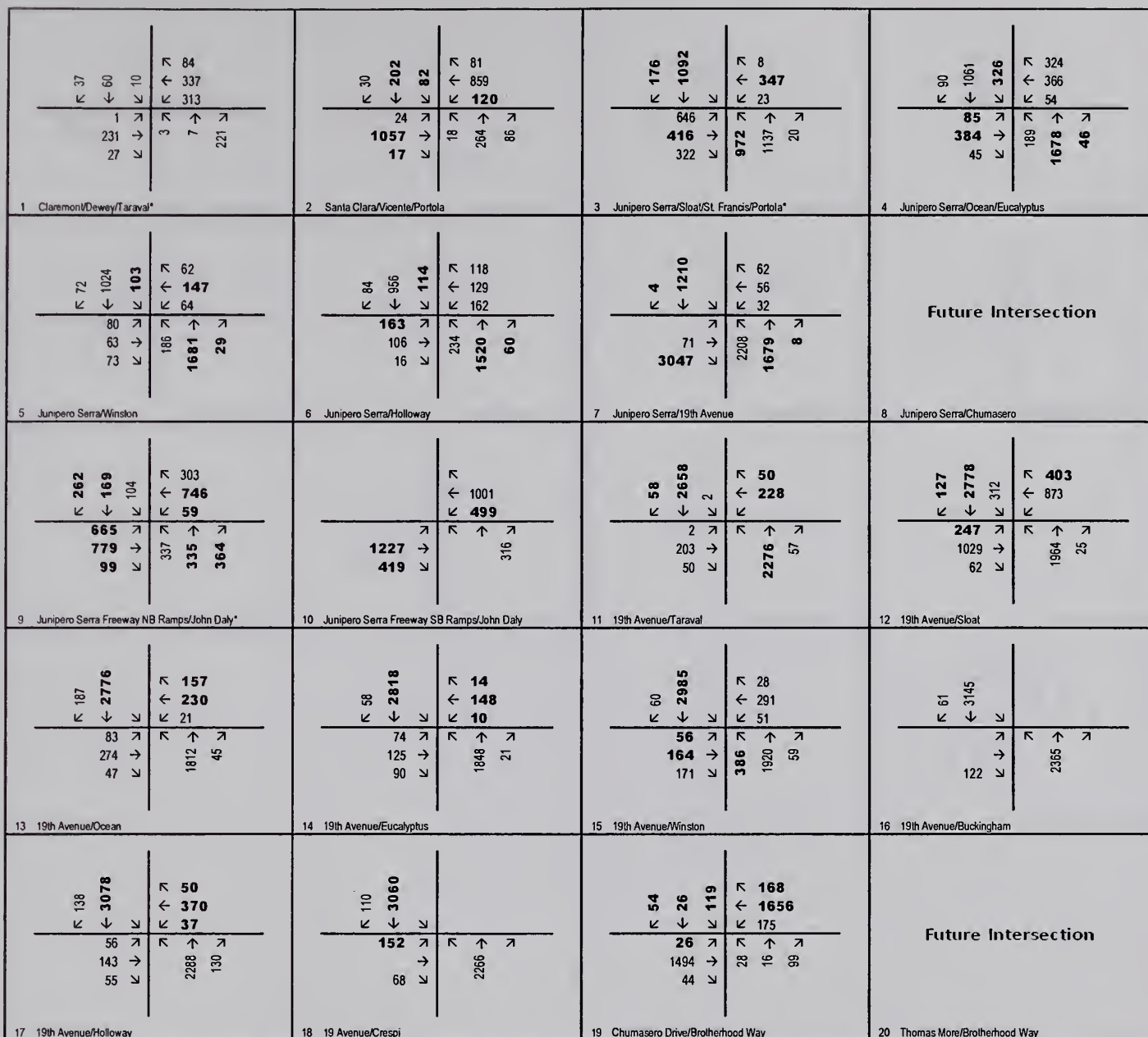
JURISDICTION: SAN FRANCISCO

DATE: 2/3/2009 TUESDAY



TELEPHONE: (510) 232 - 1271

FAX: (510) 232 - 1272



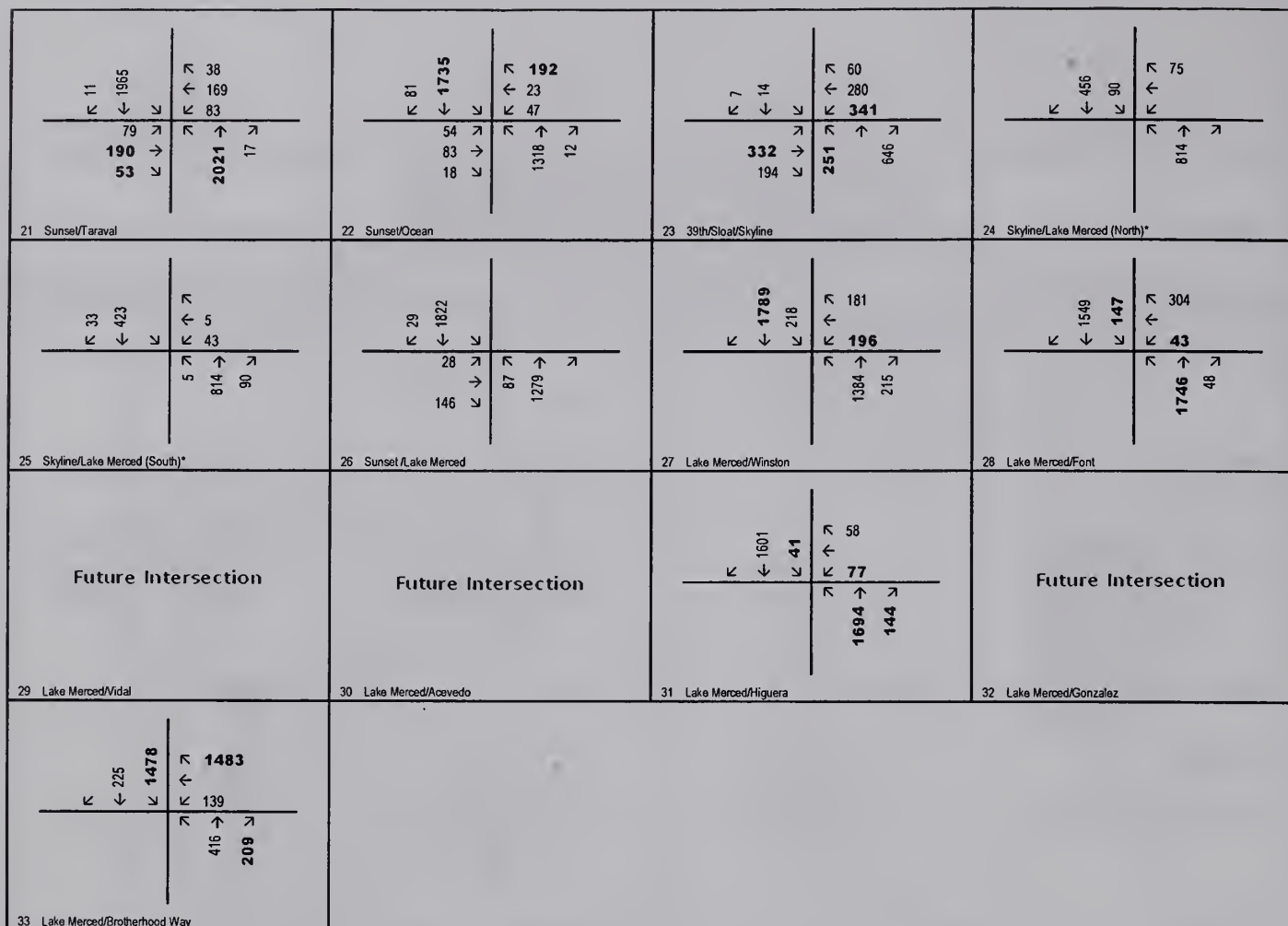
\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).

**AECOM**

FIGURE D1

123456 AM Peak Hour Volumes  
123456 Bold denotes Critical Movement

19th Avenue Corridor Study  
Existing AM Peak Hour Volumes (1)



\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).

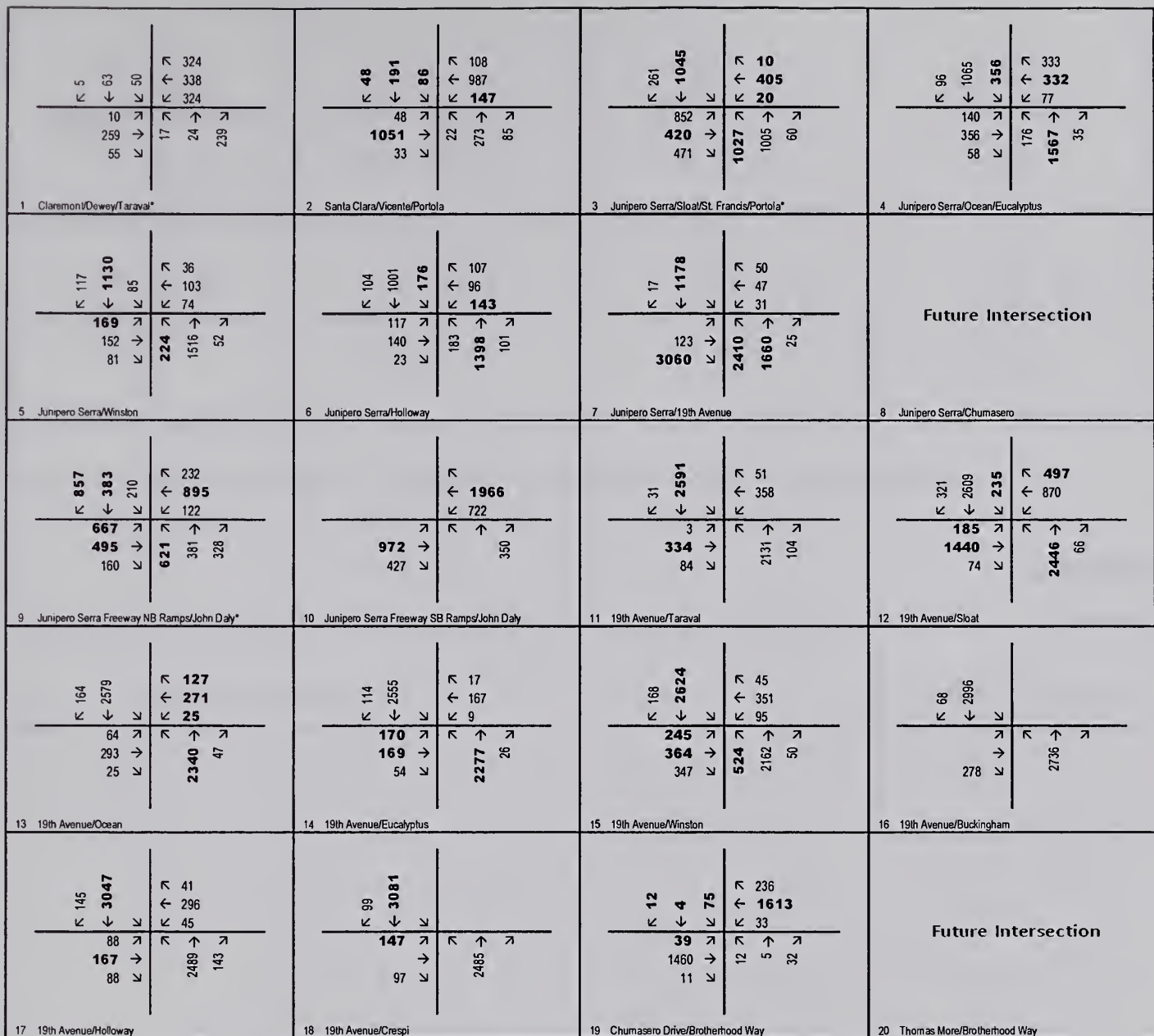
**AECOM**

FIGURE D1

123456 AM Peak Hour Volumes  
123456 Bold denotes Critical Movement

19th Avenue Corridor Study  
Existing AM Peak Hour Volumes (2)





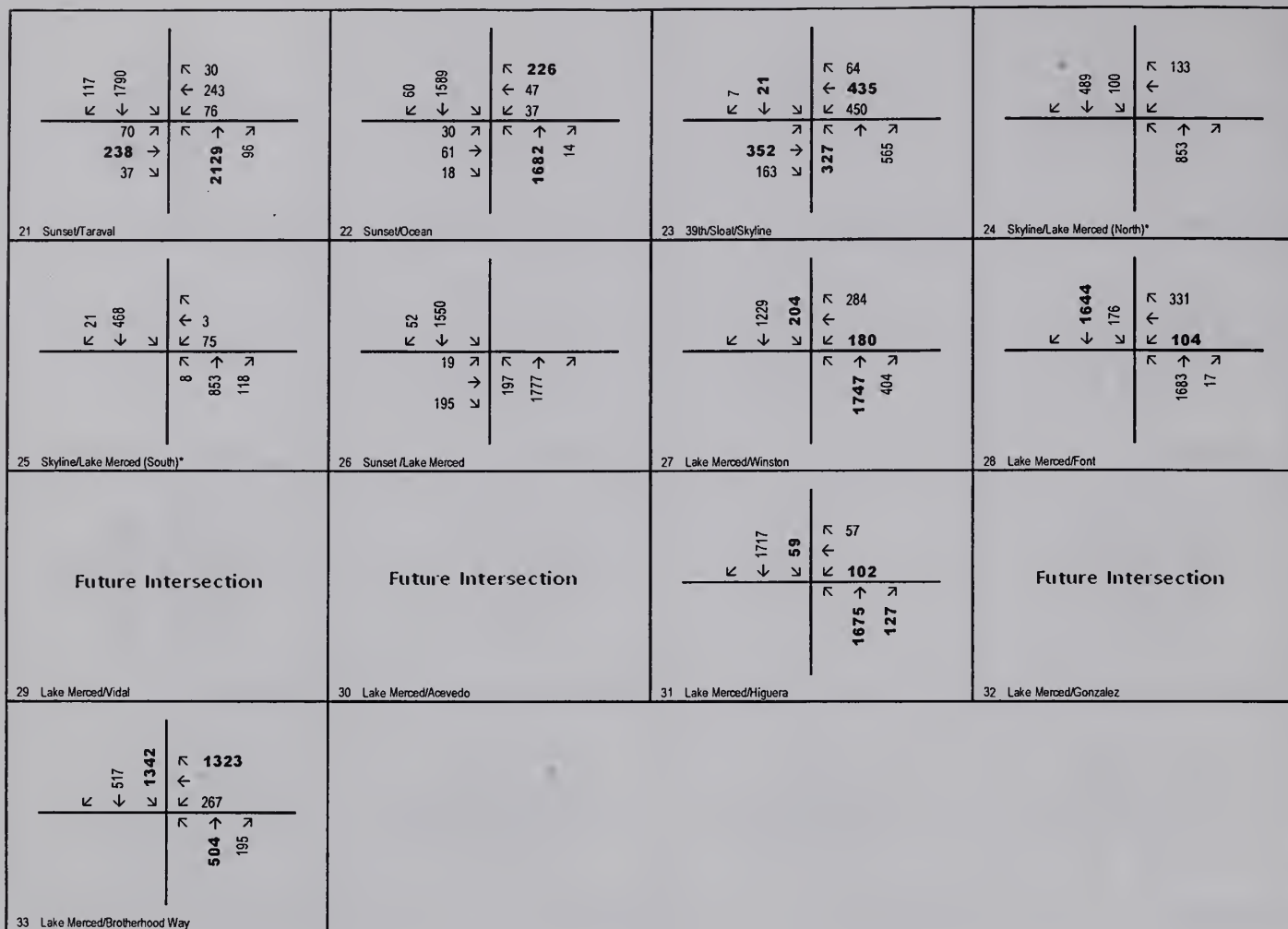
\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).

**AECOM**

FIGURE D2

123456 PM Peak Hour Volumes  
123456 Bold denotes Critical Movement

19th Avenue Corridor Study  
Existing PM Peak Hour Volumes (1)



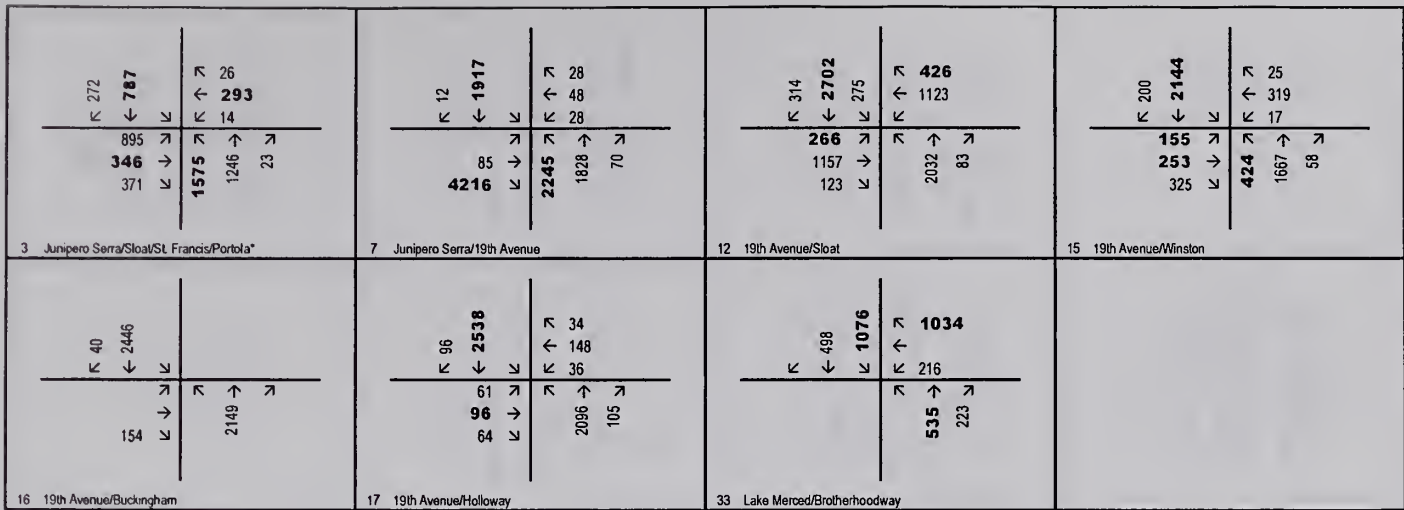
\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).

**AECOM**

FIGURE D2

123456 PM Peak Hour Volumes  
123456 Bold denotes Critical Movement

19th Avenue Corridor Study  
Existing PM Peak Hour Volumes (2)



\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).

**AECOM**

FIGURE D3

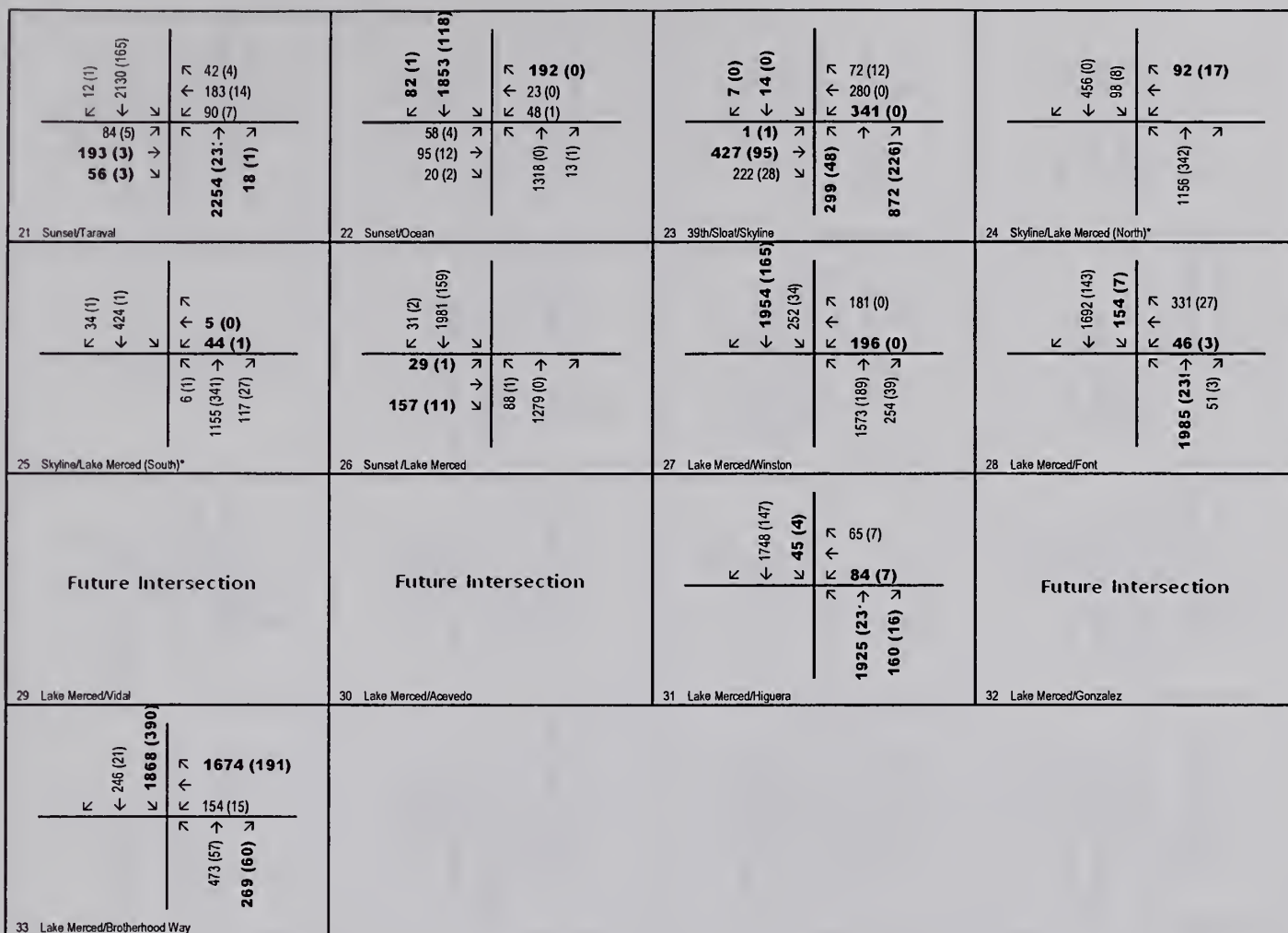
123456 Weekend Peak Hour Volumes  
123456 Bold denotes Critical Movement

*19th Avenue Corridor Study*  
Existing Weekend Peak Hour Volumes



\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).

*19th Avenue Corridor Study*  
Tier 1 AM Peak Hour Volumes



\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).

**AECOM**

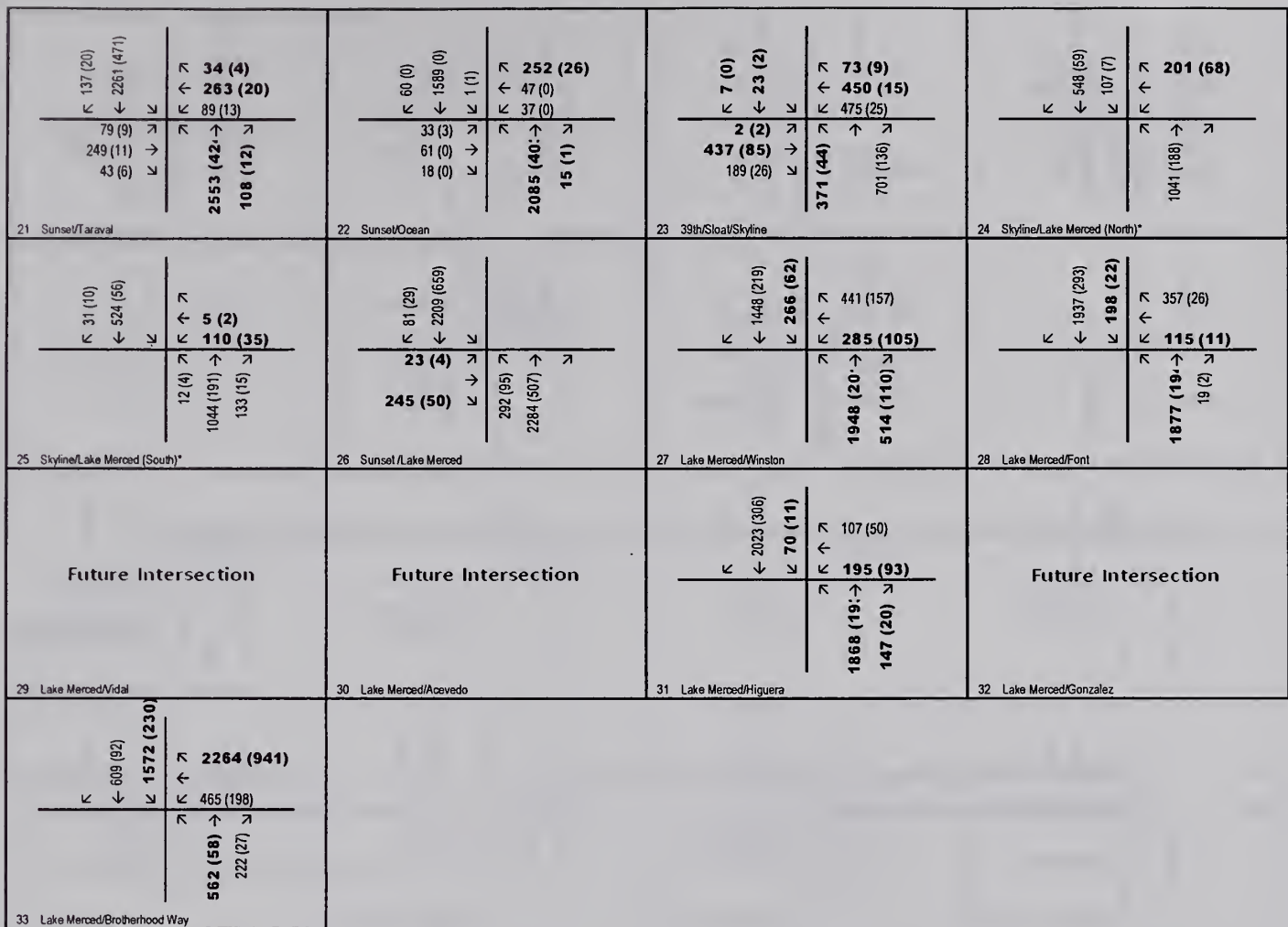
FIGURE D4

123 (456) AM (Difference in Volume between Tier 1 and Existing)  
123456 Bold denotes Critical Movement

19th Avenue Corridor Study  
Tier 1 AM Peak Hour Volumes (2)

\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).





\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).

**AECOM**

FIGURE D5

123 (456) PM (Difference in Volume between Tier 1 and Existing)  
123456 Bold denotes Critical Movement

19th Avenue Corridor Study  
Tier 1 PM Peak Hour Volumes (2)

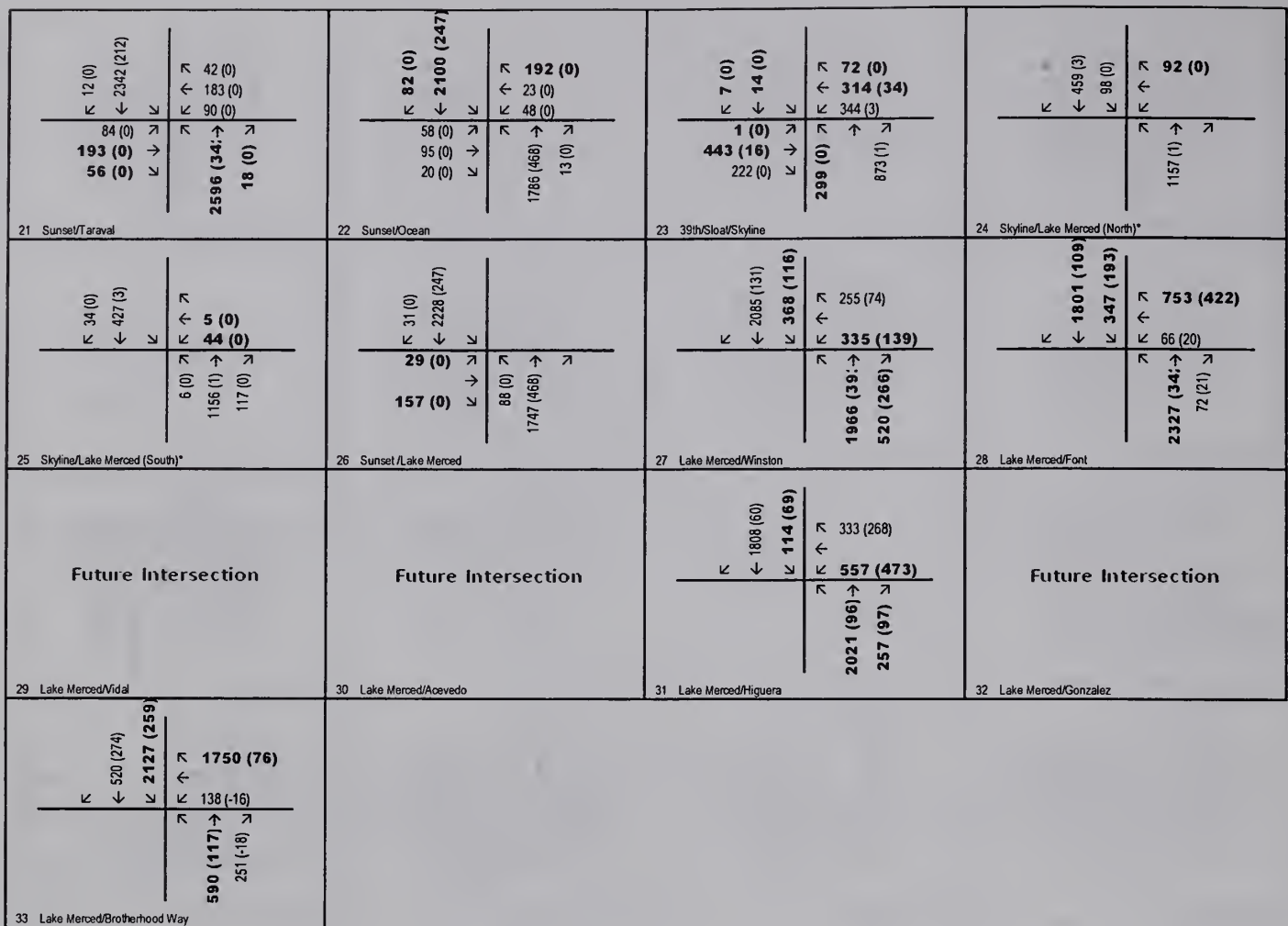
\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).



19th Avenue Corridor Study  
Tier 1 Weekend Peak Hour Volumes

\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).





\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).

**AECOM**

FIGURE D7

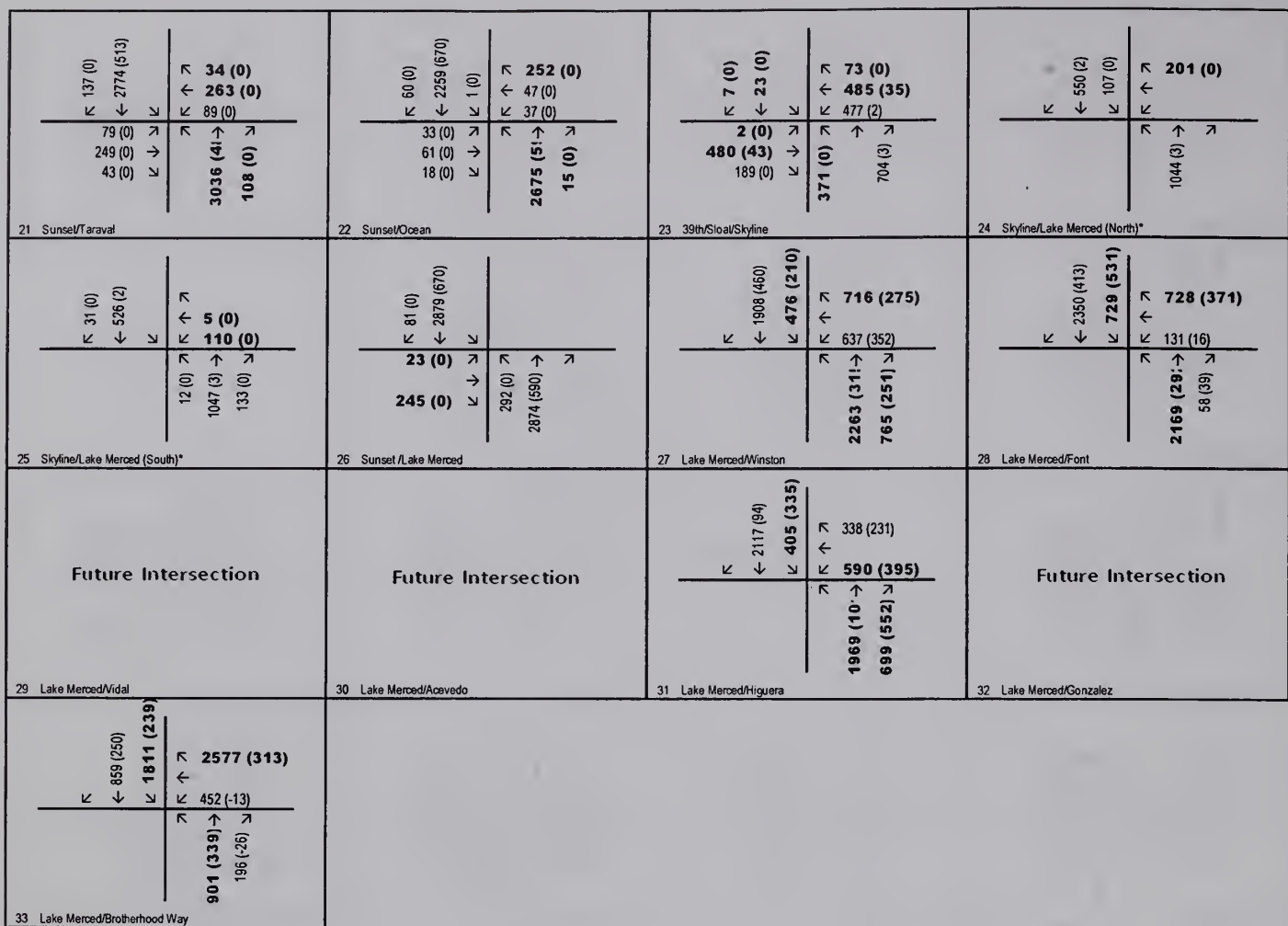
123 (456) AM (Difference in Volume between Tier 2 and Tier 1)  
 123456 Bold denotes Critical Movement

19th Avenue Corridor Study  
 Tier 2 AM Peak Hour Volumes (2)

\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).



*19th Avenue Corridor Study*  
Tier 2 PM Peak Hour Volumes (1)



\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).

**A=COM**

FIGURE D8

123 (456) PM (Difference in Volume between Tier 2 and Tier 1)  
123456 Bold denotes Critical Movement

19th Avenue Corridor Study  
Tier 2 PM Peak Hour Volumes (2)



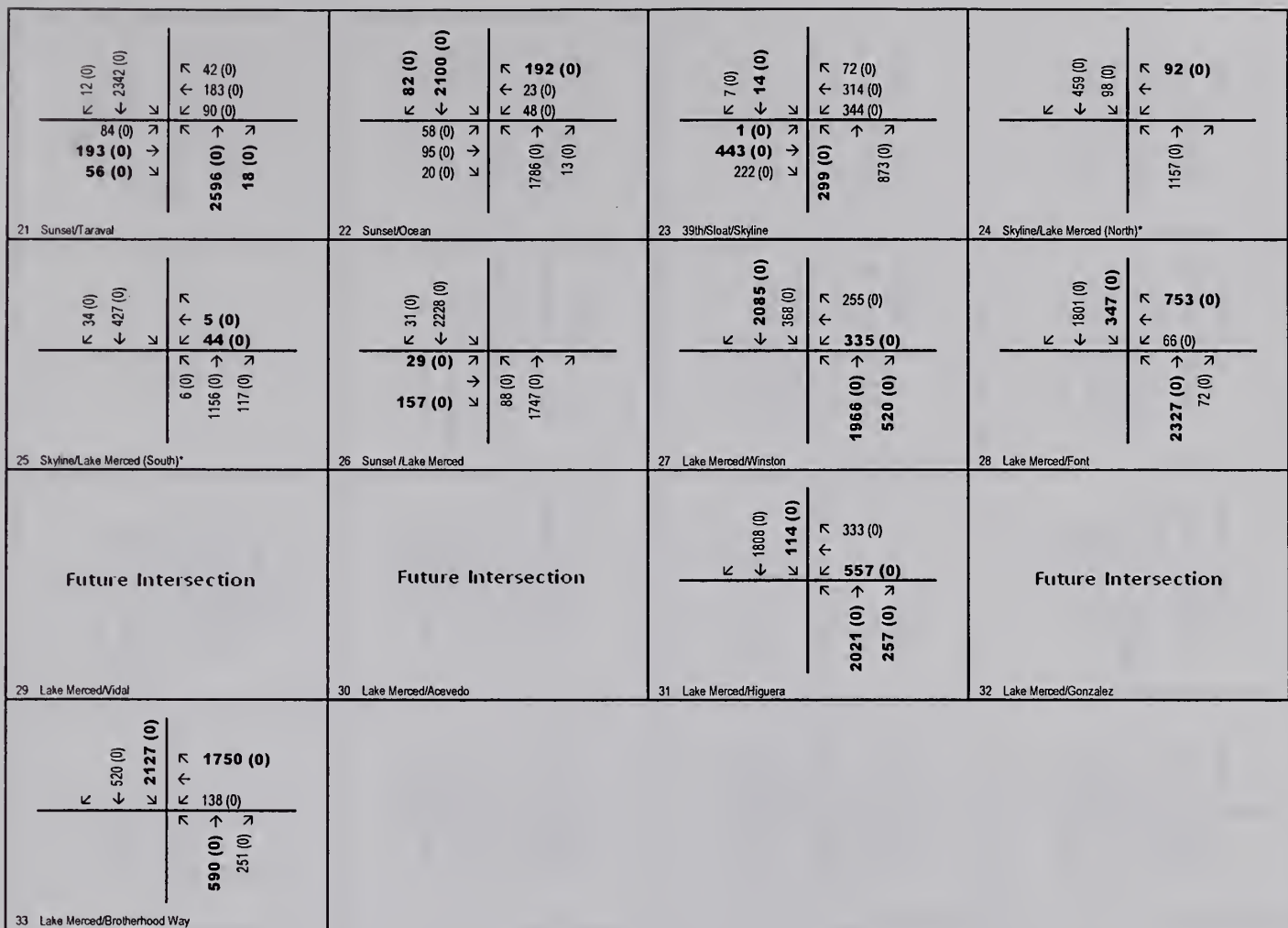
\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).



*19th Avenue Corridor Study*  
Tier 2 Weekend Peak Hour Volumes

\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).

19th Avenue Corridor Study  
Tier 3 AM Peak Hour Volumes



\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).

**A=COM**

FIGURE D10

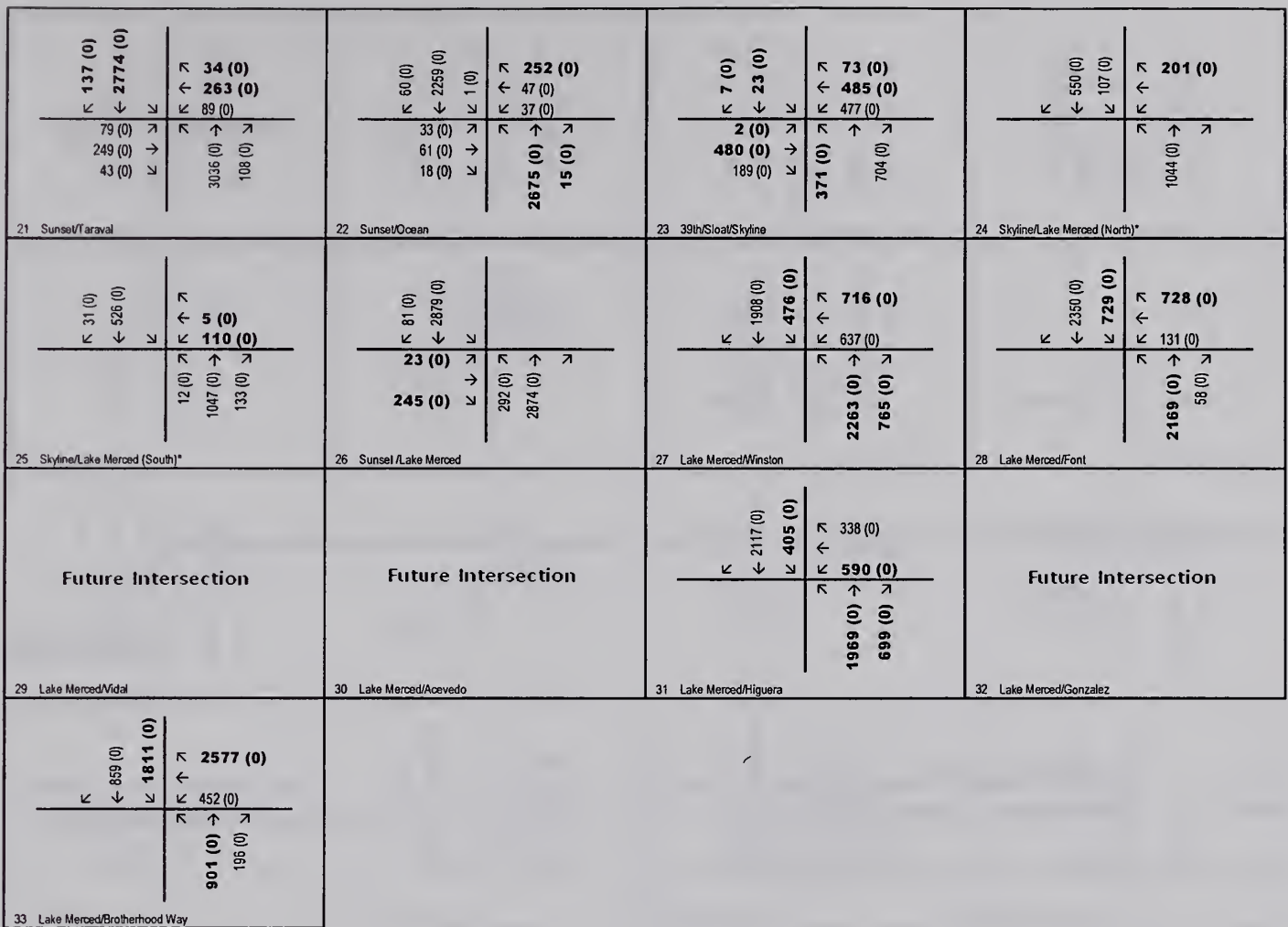
123 (456) AM (Difference in Volume between Tier 3 and Tier 2)  
 123456 Bold denotes Critical Movement

19th Avenue Corridor Study  
 Tier 3 AM Peak Hour Volumes (2)



\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).

19th Avenue Corridor Study  
Tier 3 PM Peak Hour Volumes (1)



\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).

**AECOM**

FIGURE D11

123 (456) PM (Difference in Volume between Tier 3 and Tier 2)  
 123456 Bold denotes Critical Movement

19th Avenue Corridor Study  
 Tier 3 PM Peak Hour Volumes (2)

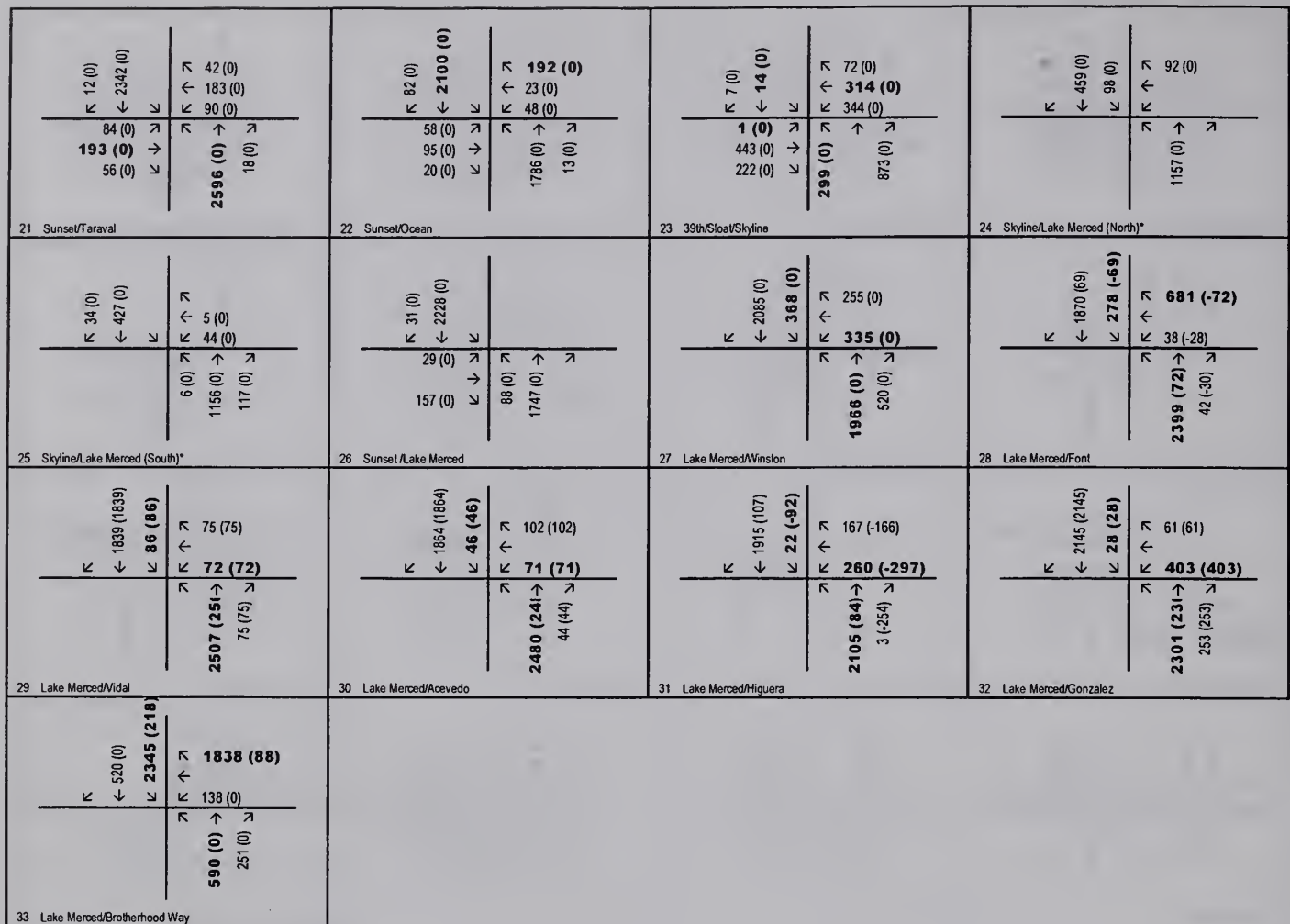
\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).

FIGURE D12

19th Avenue Corridor Study  
Tier 3 Weekend Peak Hour Volumes







\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).

**A-COM**

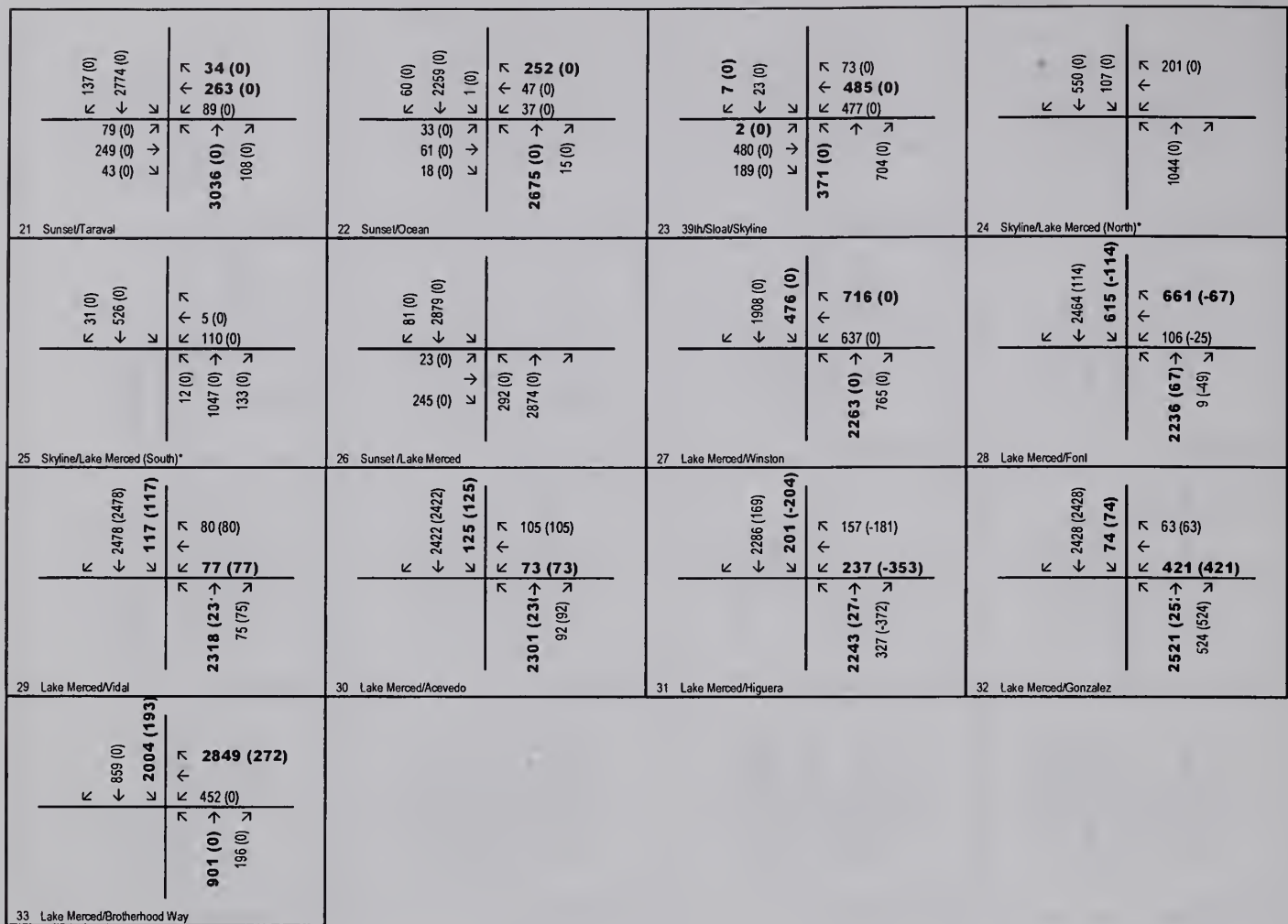
FIGURE D13

123 (456) AM (Difference in Volume between Tier 4A and Tier 2)  
 123456 Bold denotes Critical Movement

19th Avenue Corridor Study  
 Tier 4a AM Peak Hour Volumes (2)







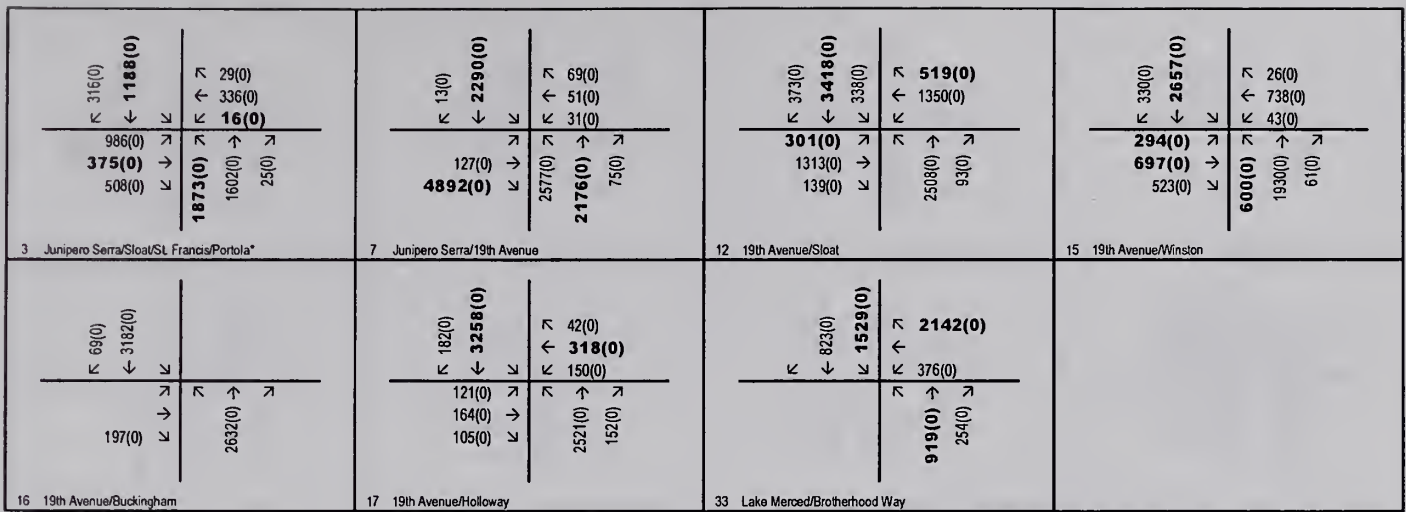
\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).

**AECOM**

FIGURE D14

123 (456) PM (Difference in Volume between Tier 4A and Tier 2)  
 123456 Bold denotes Critical Movement

19th Avenue Corridor Study  
 Tier 4a PM Peak Hour Volumes (2)



\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).

**AECOM**

FIGURE D15

123(456) Weekend Volume(Difference between Tier 4a and Tier 2)  
 123456 Bold denotes Critical Movement

*19th Avenue Corridor Study*  
 Tier 4a Weekend Peak Hour Volumes

[illegible]

\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).

**AECOM**

FIGURE D16

123 (456)

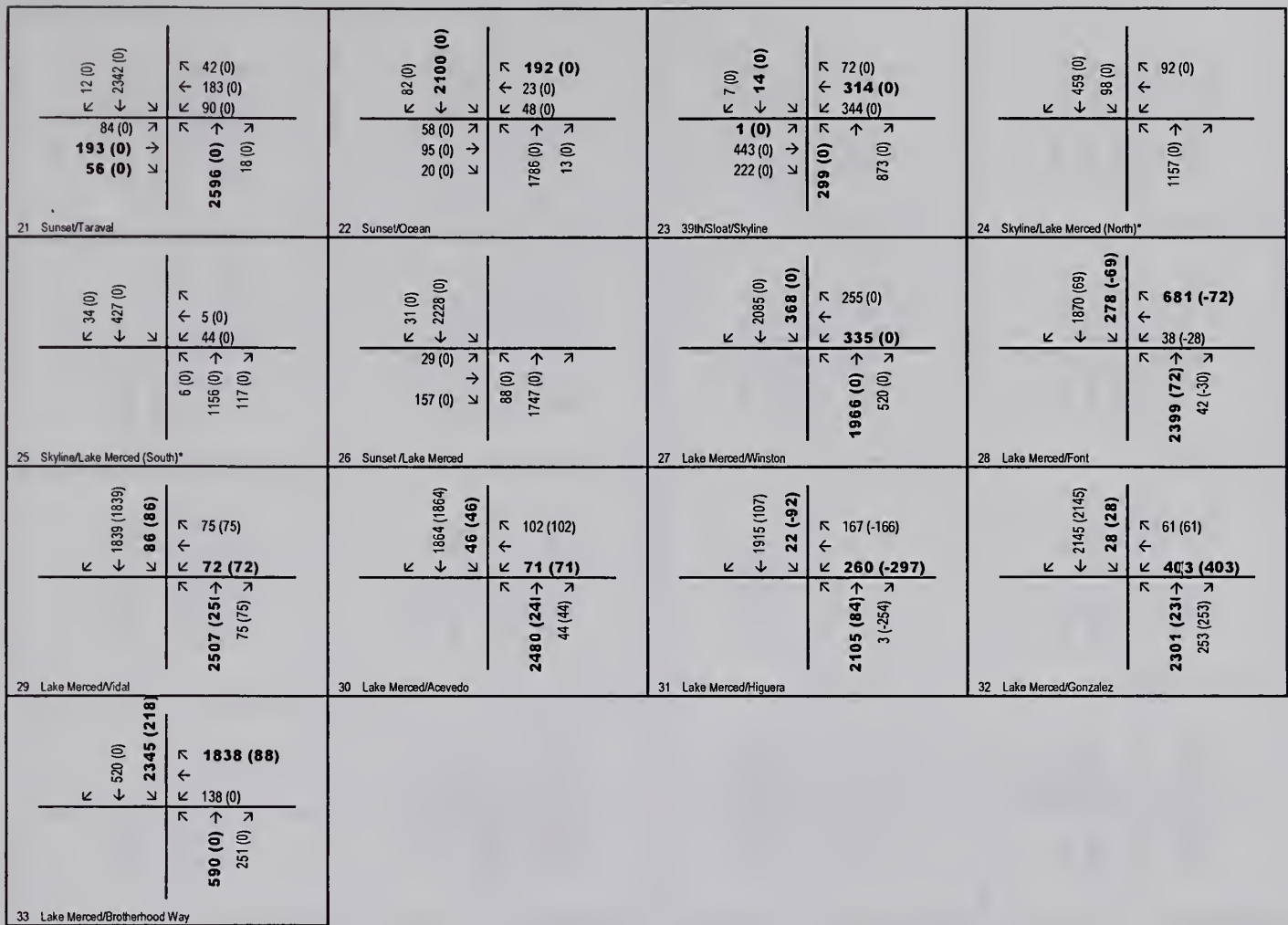
123456

AM (Difference in Volume between Tier 4B and Tier 2)

**Bold denotes Critical Movement**

19th Avenue Corridor Study  
Tier 4b AM Peak Hour Volumes (1)





\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).

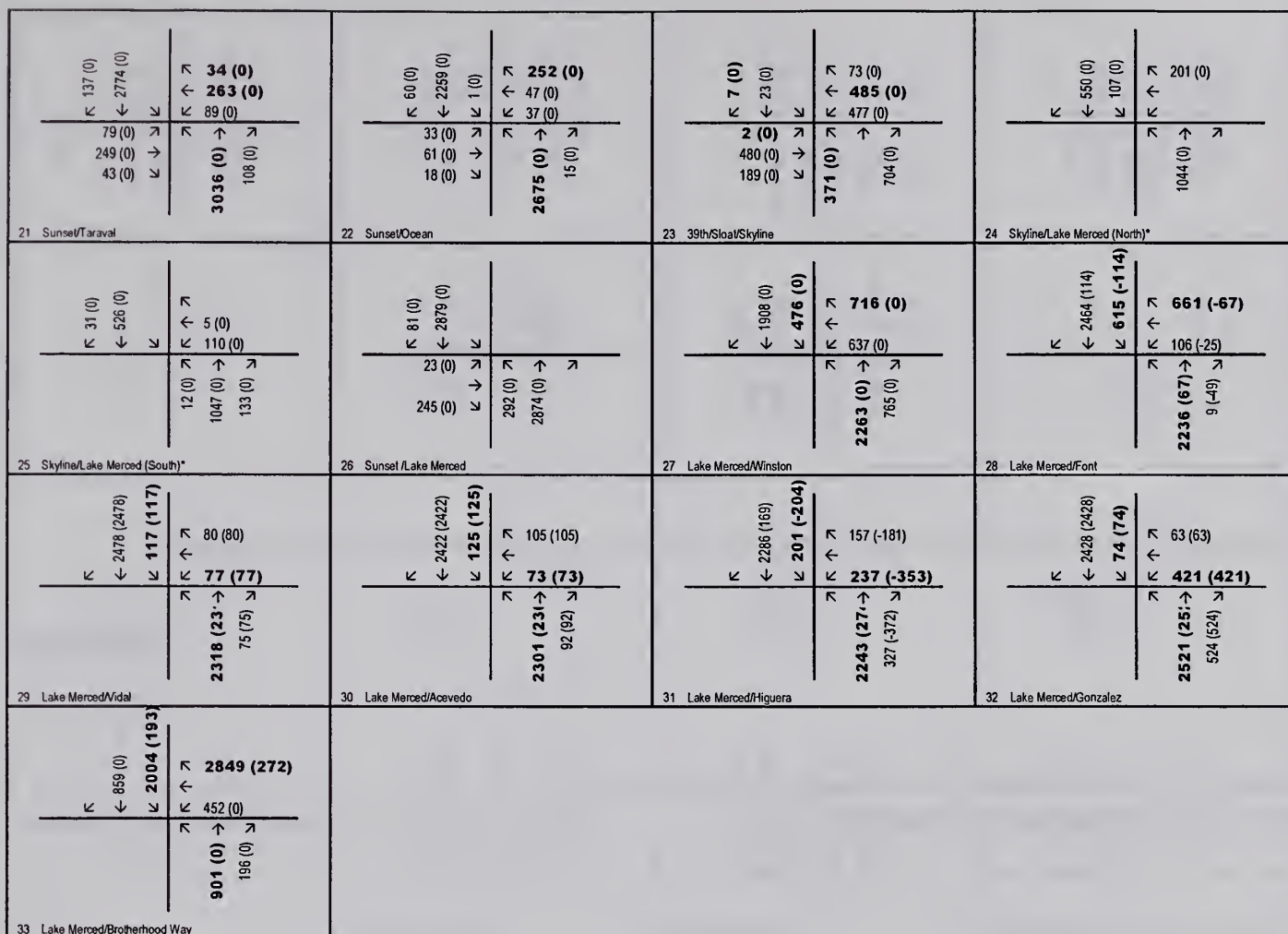
**AECOM**

FIGURE D16

123 (456) AM (Difference in Volume between Tier 4B and Tier 2)  
 123456 Bold denotes Critical Movement

19th Avenue Corridor Study  
 Tier 4b AM Peak Hour Volumes (2)





\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).

**AECOM**

FIGURE D17

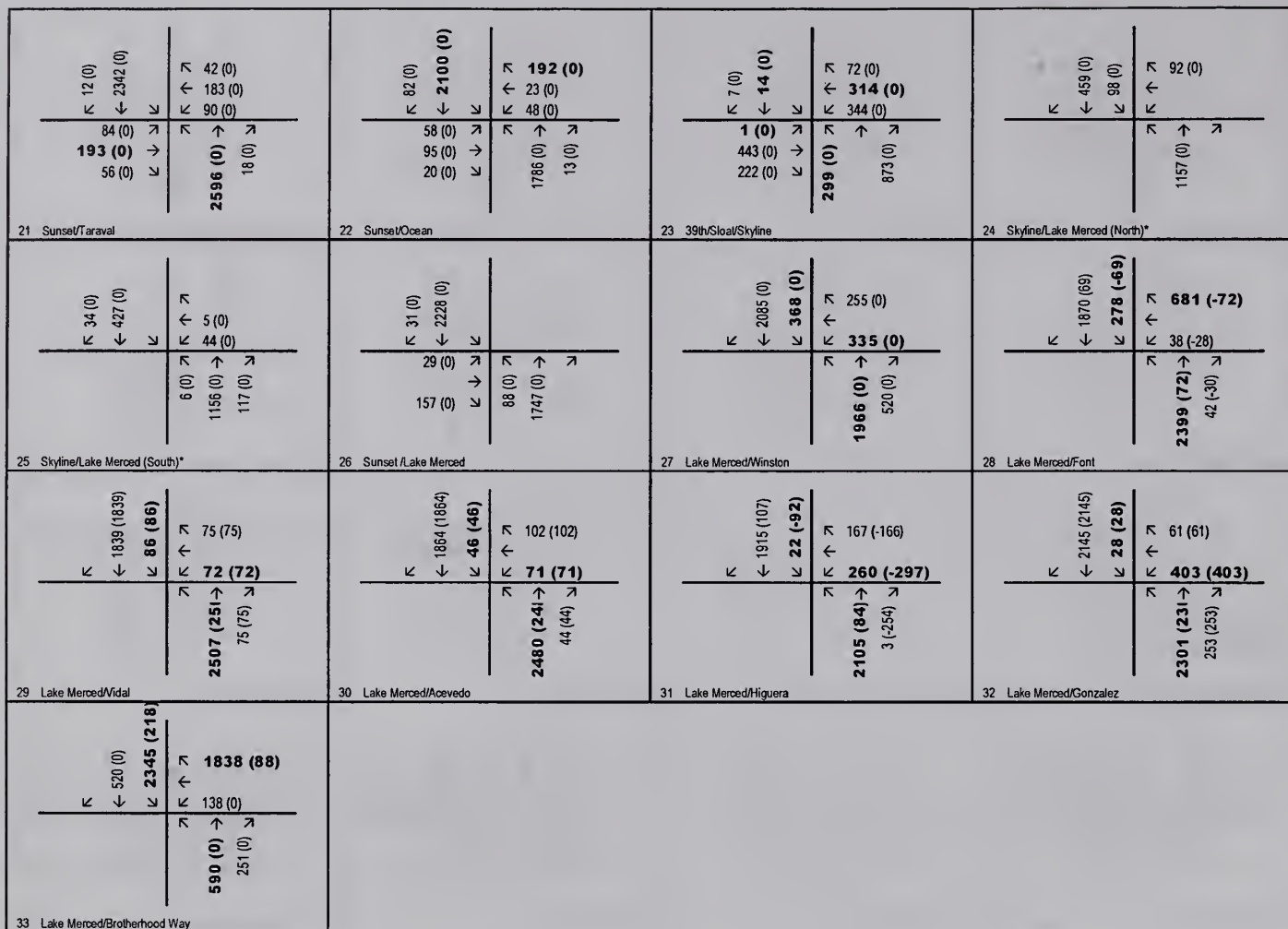
123 (456) PM (Difference in Volume between Tier 4B and Tier 2)  
**123456** Bold denotes Critical Movement

*19th Avenue Corridor Study*  
Tier 4b PM Peak Hour Volumes (2)





\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).



\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).

**AECOM**

FIGURE D19

123 (456) AM (Difference in Volume between Tier 4C and Tier 2)  
123456 Bold denotes Critical Movement

19th Avenue Corridor Study  
Tier 4c AM Peak Hour Volumes (2)

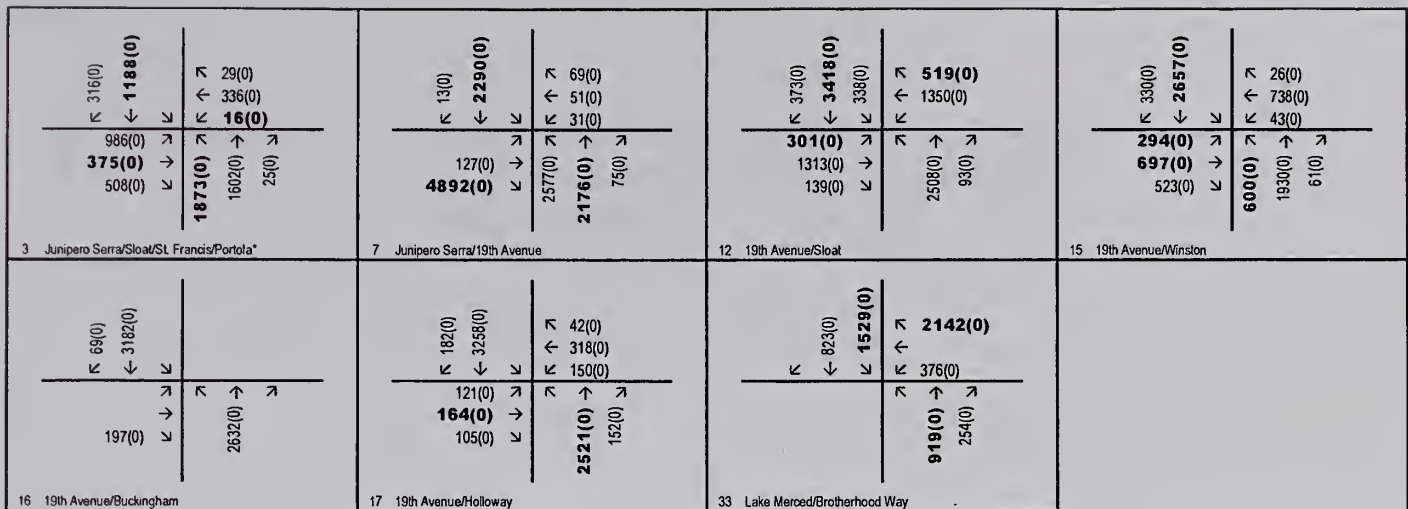


\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).



19th Avenue Corridor Study  
Tier 4c PM Peak Hour Volumes (1)





\*Intersection turn movements were revised from existing configuration in order to model correctly into Traffix software (traditional NSEW configuration).

**AECOM**

FIGURE D21

123(456) Weekend Volume(Difference between Tier 4c and Tier 2)  
 123456 Bold denotes Critical Movement

*19th Avenue Corridor Study*  
 Tier 4c Weekend Peak Hour Volumes



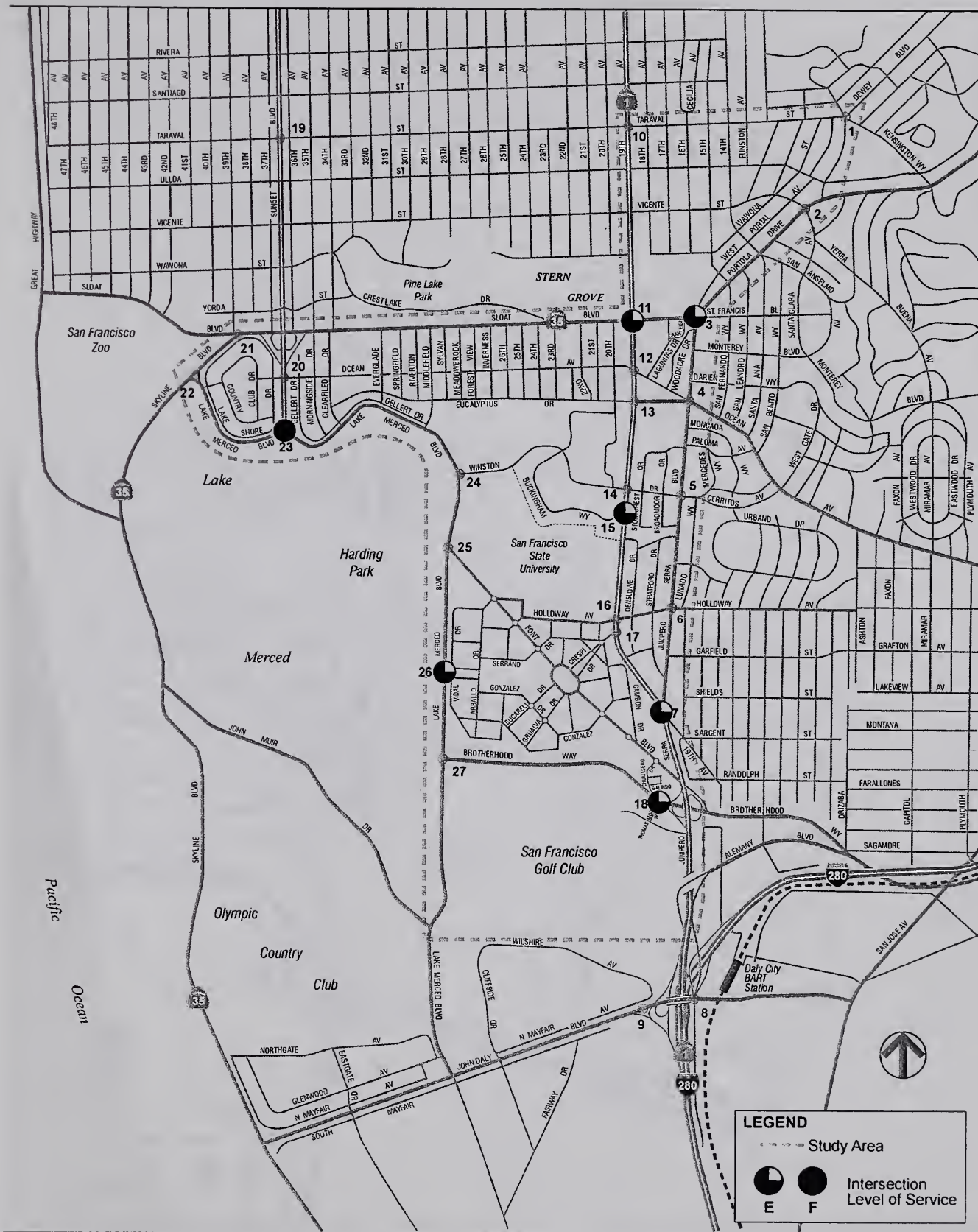


## **APPENDIX E. INTERSECTION LEVEL OF SERVICE CALCULATIONS AND PARAMETER ADJUSTMENTS**

---







19TH AVENUE CORRIDOR STUDY

**Figure E.1**  
**EXISTING INTERSECTION LEVEL OF SERVICE (LOS E/F Locations Only)**  
**Weekday AM Peak Period**



19TH AVENUE CORRIDOR STUDY

**Figure E.2**

**EXISTING INTERSECTION LEVEL OF SERVICE (LOS E/F Locations Only)**

**Weekday PM Peak Period**





Existing LOS weekend as

19TH AVENUE CORRIDOR STUDY

**Figure E.3**  
**EXISTING INTERSECTION LEVEL OF SERVICE (LOS E/F Locations Only)**  
**Weekend Midday Peak Period**





19TH AVENUE CORRIDOR STUDY  
**Figure E.4**  
**TIER 1 INTERSECTION LEVEL OF SERVICE (LOS E/F Locations Only)**  
**Weekday AM Peak Period**



19TH AVENUE CORRIDOR STUDY

**Figure E.5**  
**TIER 1 INTERSECTION LEVEL OF SERVICE (LOS E/F Locations Only)**  
**Weekday PM Peak Period**





19TH AVENUE CORRIDOR STUDY

**Figure E.6**  
**TIER 1 INTERSECTION LEVEL OF SERVICE (LOS E/F Locations Only)**  
**Weekend Midday Peak Period**





19TH AVENUE CORRIDOR STUDY

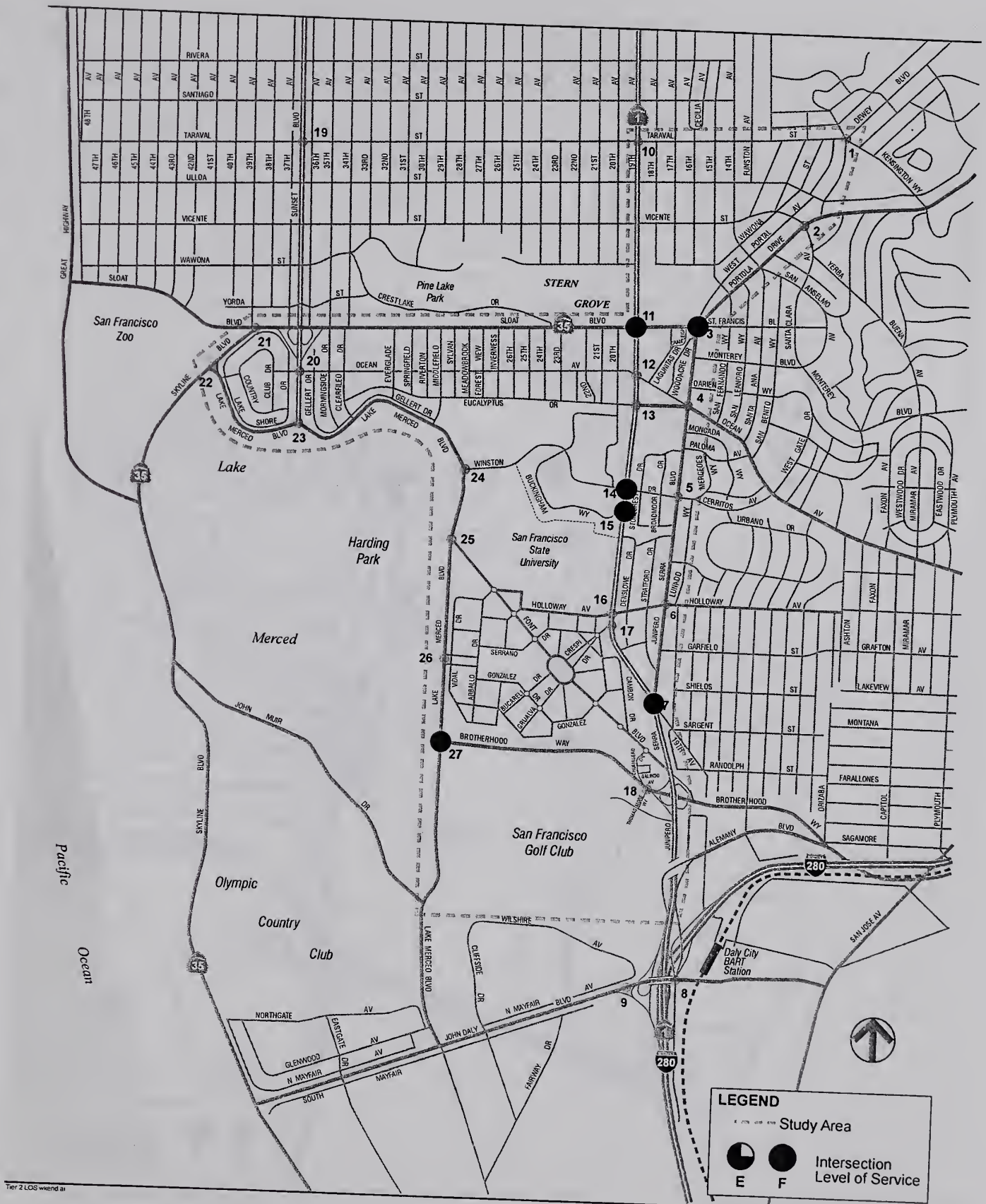
**Figure E.7**  
**TIER 2 INTERSECTION LEVEL OF SERVICE (LOS E/F Locations Only)**  
**Weekday AM Peak Period**



19TH AVENUE CORRIDOR STUDY

**Figure E.8**  
**TIER 2 INTERSECTION LEVEL OF SERVICE (LOS E/F Locations Only)**  
**Weekday PM Peak Period**





19TH AVENUE CORRIDOR STUDY

**Figure E.9**  
**TIER 2 INTERSECTION LEVEL OF SERVICE (LOS E/F Locations Only)**  
**Weekend Midday Peak Period**





19TH AVENUE CORRIDOR STUDY

**Figure E.10**  
**TIER 3 INTERSECTION LEVEL OF SERVICE (LOS E/F Locations Only)**  
**Weekday AM Peak Period**



**Figure E.11**  
**TIER 3 INTERSECTION LEVEL OF SERVICE (LOS E/F Locations Only)**  
**Weekday PM Peak Period**









19TH AVENUE CORRIDOR STUDY

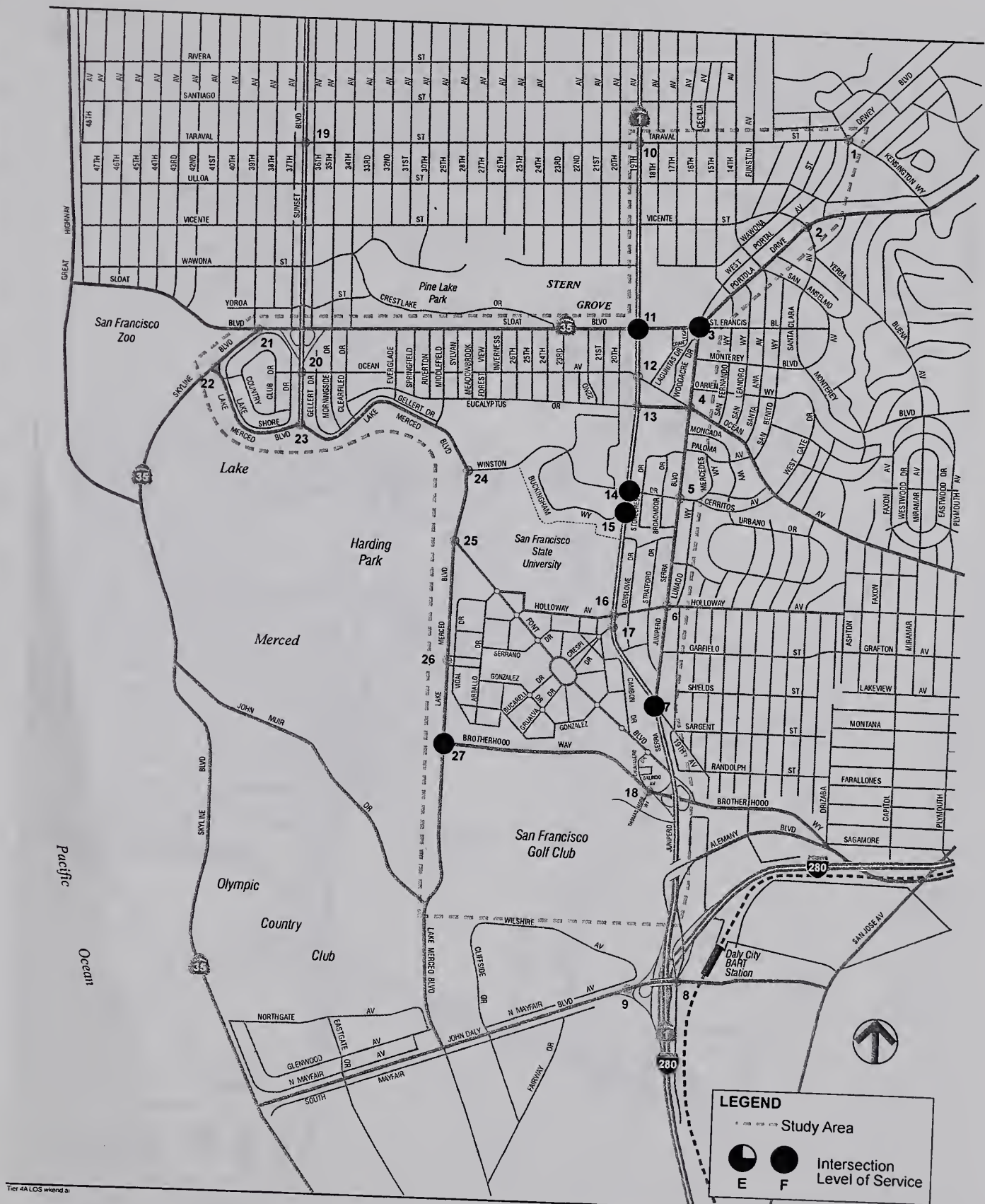
**Figure E.13**  
**TIER 4A INTERSECTION LEVEL OF SERVICE (LOS E/F Locations Only)**  
**Weekday AM Peak Period**



19TH AVENUE CORRIDOR STUDY

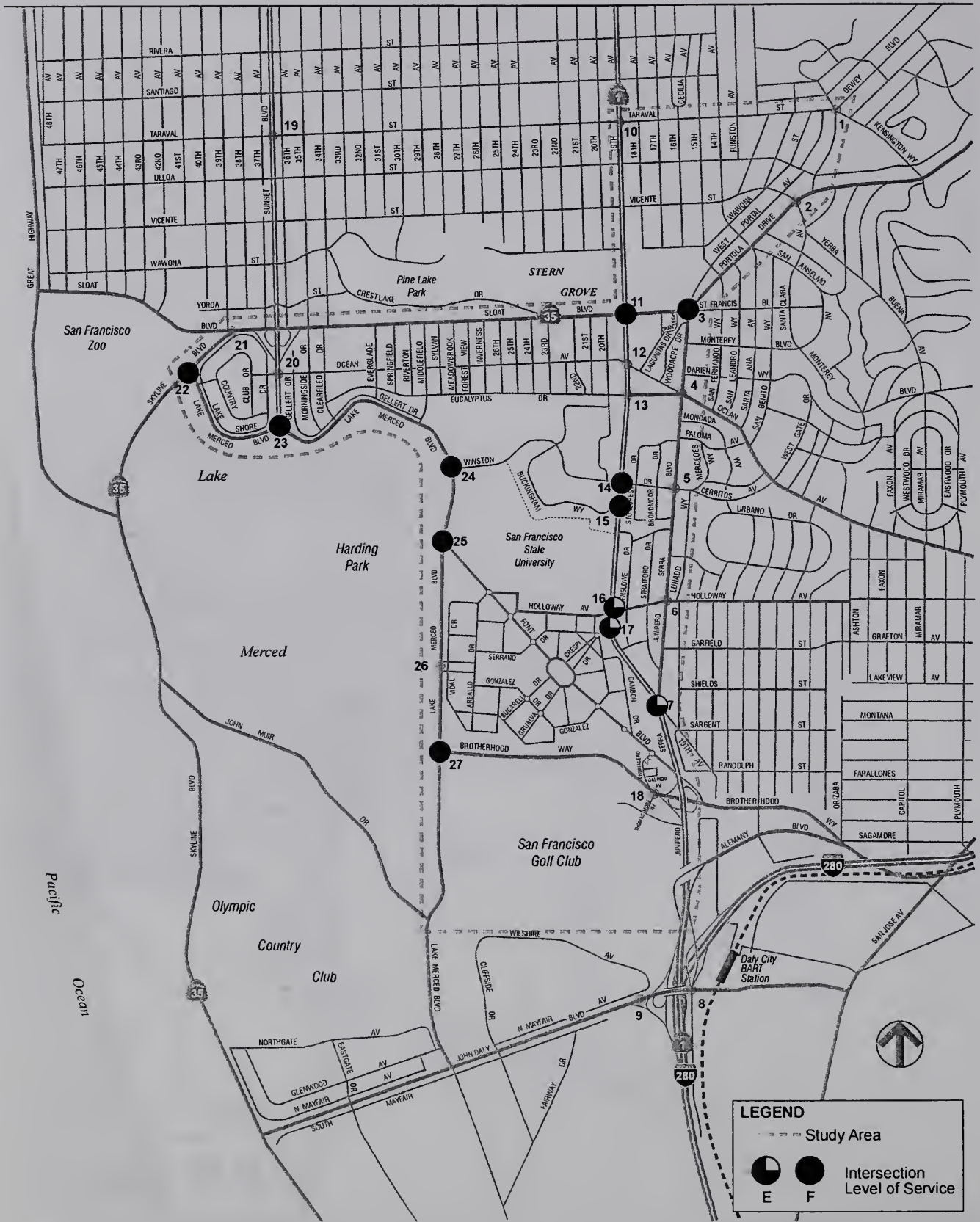
**Figure E.14**  
**TIER 4A INTERSECTION LEVEL OF SERVICE (LOS E/F Locations Only)**  
**Weekday PM Peak Period**





**Figure E.15**  
**TIER 4A INTERSECTION LEVEL OF SERVICE (LOS E/F Locations Only)**  
**Weekend Midday Peak Period**





Tier 4B LOS study AM

19TH AVENUE CORRIDOR STUDY

**Figure E.16**  
**TIER 4B INTERSECTION LEVEL OF SERVICE (LOS E/F Locations Only)**  
**Weekday AM Peak Period**



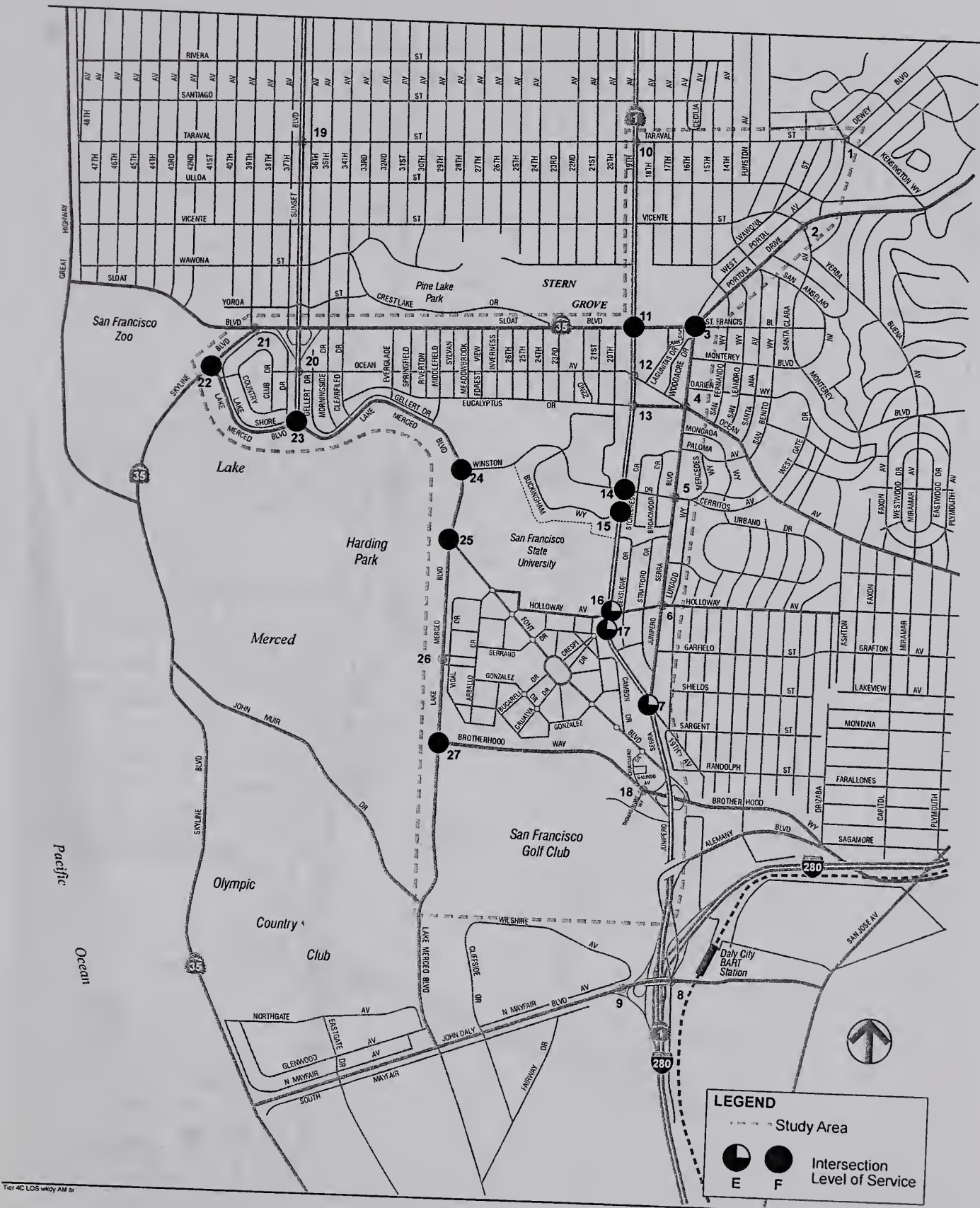
19TH AVENUE CORRIDOR STUDY

**TIER 4B INTERSECTION LEVEL OF SERVICE (LOS E/F Locations Only)**  
**Figure E.17**  
**Weekday PM Peak Period**





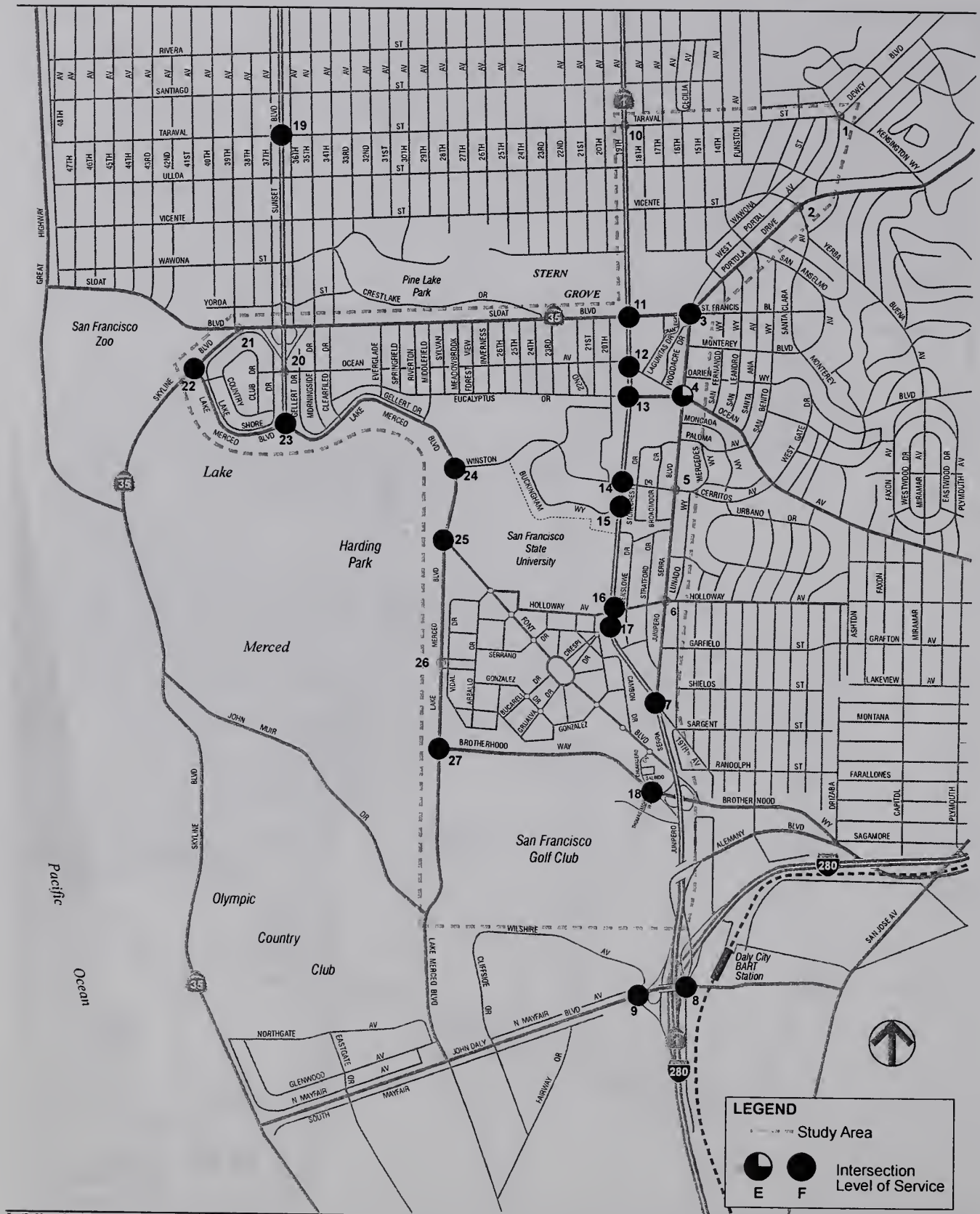




19TH AVENUE CORRIDOR STUDY

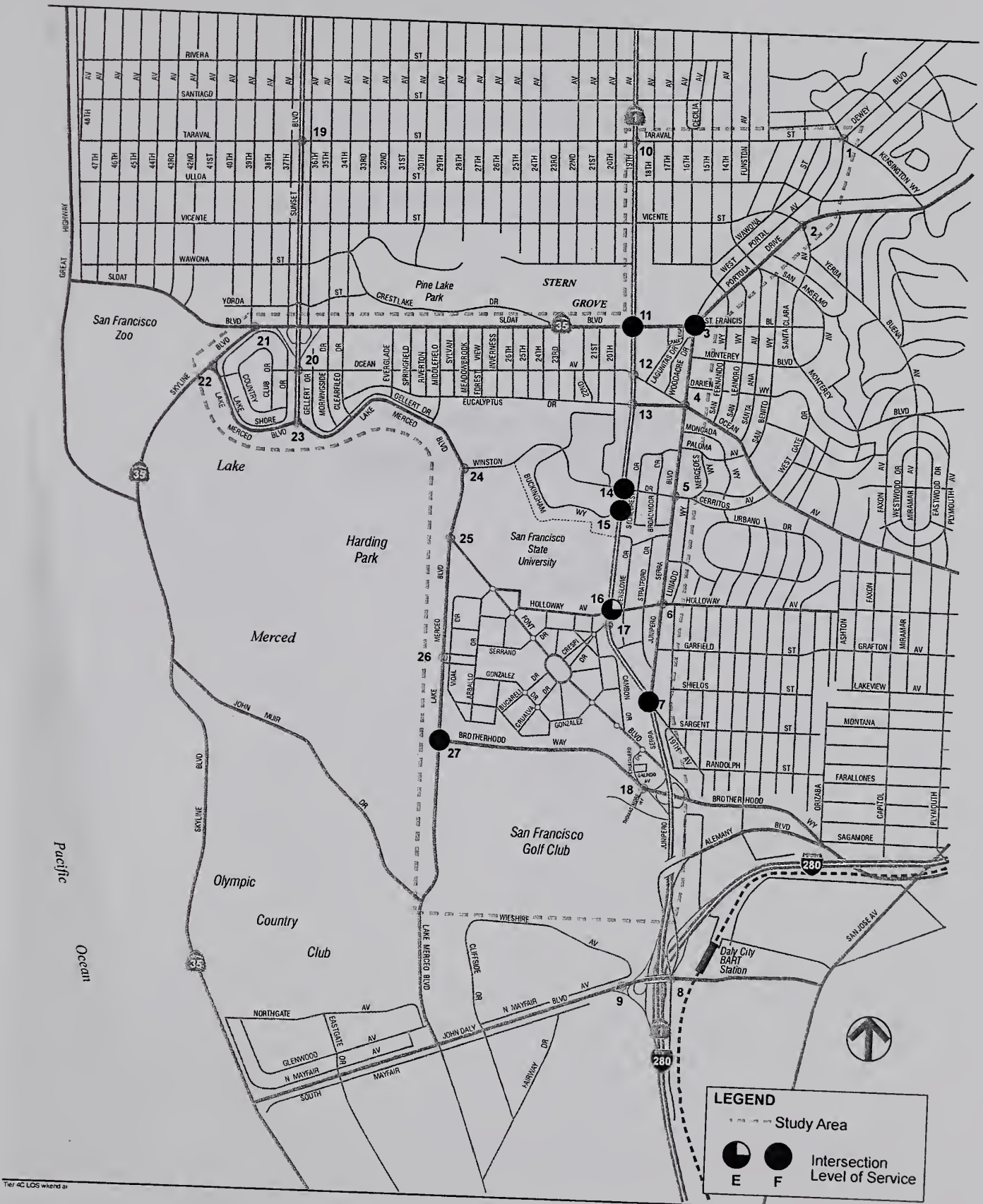
**Figure E.19**  
**TIER 4C INTERSECTION LEVEL OF SERVICE (LOS E/F Locations Only)**  
**Weekday AM Peak Period**

Tier 4C LOS weekday AM 31



**Figure E.20**  
**TIER 4C INTERSECTION LEVEL OF SERVICE (LOS E/F Locations Only)**  
**Weekday PM Peak Period**





19TH AVENUE CORRIDOR STUDY

Figure E.21  
**TIER 4C INTERSECTION LEVEL OF SERVICE (LOS E/F Locations Only)**  
 Weekend Midday Peak Period



Existing Conditions  
Weekday AM Peak Hour

19th Ave CS  
Existing

## Scenario Report

## Existing AM

Command:  
Volume:  
Geometry:  
Impact Fee:  
Trip Generation:  
Trip Distribution:  
Paths:  
Routes:  
Configuration:

Default Command  
Existing AM  
Existing AM  
Default Impact Fee  
No Projects  
AM  
Tier 2/3  
Tier 2/3  
Existing

19th Ave CS  
ExistingImpact Analysis Report  
Level Of Service

## Intersection

	Base		Future		Change in
	Del/	V/	Del/	V/	
	LOS	C	LOS	C	
#1010 Claremont / Taraval / Dewey /	A	6.8 0.647	A	6.8 0.647	+ 0.000 V/C
#1020 Santa Clara / Portola / Vicent	C	26.5 0.762	C	26.5 0.762	+ 0.000 D/V
#1030 Junipero Serra / Sloat / West	E	65.2 0.964	E	65.2 0.964	+ 0.000 D/V
#1040 Junipero Serra / Ocean / Eucal	C	31.7 0.795	C	31.7 0.795	+ 0.000 D/V
#1050 Junipero Serra / Winston / Mer	C	29.1 0.581	C	29.1 0.581	+ 0.000 D/V
#1060 Junipero Serra / Holloway	C	29.8 0.630	C	29.8 0.630	+ 0.000 D/V
#1070 Junipero Serra / 19th	E	57.9 0.886	E	57.9 0.886	+ 0.000 D/V
#1075 Junipero Serra / Chumasero	A	2.2 0.701	A	2.2 0.701	+ 0.000 D/V
#1080 Junipero Serra / I-280 NB On-R	D	39.7 0.751	D	39.7 0.751	+ 0.000 D/V
#1090 Junipero Serra / I-280 SB On-R	B	19.8 0.544	B	19.8 0.544	+ 0.000 D/V
#1100 19th / Taraval	B	19.7 0.771	B	19.7 0.771	+ 0.000 D/V
#1110 19th / Sloat	E	58.1 1.429	E	58.1 1.429	+ 0.000 D/V
#1120 19th / Ocean	C	23.5 0.968	C	26.9 0.966	+ 3.409 D/V
#1130 19th / Eucalyptus	B	14.3 0.775	B	14.2 0.775	-0.037 D/V
#1140 19th / Winston	D	37.9 0.954	D	37.9 0.954	+ 0.000 D/V
#1150 19th / Buckingham	E	47.7 0.624	E	47.7 0.624	+ 0.000 D/V
#1160 19th / Holloway	D	40.6 0.815	D	40.6 0.815	+ 0.000 D/V
#1170 19th / Crespi	D	37.3 0.724	D	37.3 0.724	+ 0.044 D/V
#1181 Chumasero / Brotherhood	E	77.5 0.924	E	77.5 0.924	+ 0.000 D/V
#1190 Sunset / Taraval	B	17.7 0.677	B	17.7 0.677	+ 0.000 D/V
#1200 Sunset / Ocean	B	11.8 0.596	B	11.8 0.596	+ 0.000 D/V
#1210 Skyline / Sloat / 39th	B	14.5 0.577	B	14.5 0.577	+ 0.000 V/C
#1221 Skyline / Lake Merced (WBR)	B	11.9 0.126	B	11.9 0.126	+ 0.000 D/V
#1222 Skyline / Lake Merced (WBLT)	D	29.3 0.233	D	29.3 0.233	+ 0.000 D/V

Intersection	Base Del/ LOS Veh	V/ C	Future Del/ LOS Veh	Change in C
#1230 Sunset / Lake Merced	F 130.4	0.539	F 130.4	0.539 + 0.000 D/V
#1240 Lake Merced / Winston	C 21.9	0.658	C 21.9	0.658 + 0.021 D/V
#1250 Lake Merced / Font	D 39.1	0.686	D 39.4	0.686 + 0.283 D/V
#1263 Lake Merced / Higuera	E 66.9	0.711	E 66.9	0.711 + 0.000 D/V
#1270 Lake Merced / Brotherhood	D 42.7	1.836	D 42.7	1.836 -0.037 D/V

Level Of Service Computation Report									
FHWA Roundabout Method (Base Volume Alternative)									
*****									
Intersection #1010 Claremont / Taraval / Dewey / Kensington									
*****									
Average Delay (sec/veh): 6.8 Level Of Service: A									
*****									
Street Name: Claremont Taraval / Dewey									
Approach: North Bound South Bound East Bound West Bound									
Movement: L - T - R L - T - R L - T - R L - T - R									
Control: Yield Sign Yield Sign Yield Sign Yield Sign									
Lanes: 1 1 1 1									
Volume Module:									
Base Vol:	3	7	221	10	60	37	1	231	27 313 337 84
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00 1.00 1.00 1.00
Initial Bse:	3	7	221	10	60	37	1	231	27 313 337 84
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00 1.00 1.00 1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95 0.95 0.95 0.95
PHF Volume:	3	7	233	11	63	39	1	243	28 329 355 88
Reduc Vol:	0	0	0	0	0	0	0	0	0 0 0 0
Reduced Vol:	3	7	233	11	63	39	1	243	28 329 355 88
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00 1.00 1.00 1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00 1.00 1.00 1.00
FinalVolume:	3	7	233	11	63	39	1	243	28 329 355 88
PCE Module:									
AutoPCE:	3	7	233	11	63	39	1	243	28 329 355 88
TruckPCE:	0	0	0	0	0	0	0	0	0 0 0 0
ComboPCE:	0	0	0	0	0	0	0	0	0 0 0 0
BicyclePCE:	0	0	0	0	0	0	0	0	0 0 0 0
AdjVolume:	3	7	233	11	63	39	1	243	28 329 355 88
Delay Module: >> Time Period: 0.25 hours <<									
CircVolume:	255		687					403	12
MaxVolume:	1062		829					982	1194
PedVolume:	0		0					0	0
AdjMaxVol:	1062		829					982	1194
ApproachVol:	243		113					273	773
ApproachV/C:	0.23		0.14					0.28	0.65
ApproachDel:	4.4		5.0					5.1	8.4
ApproachLOS:	A		A					A	A
Queue:	0.9		0.5					1.1	5.0



Existing AM Mon Jan 4, 2010 08:59:12 Page 4-1

19th Ave CS  
Existing

Level of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1020 Santa Clara / Portola / Vicente

Cycle (sec): 80 Critical Vol./Cap.(X): 0.762  
Loss Time (sec): 11 Average Delay (sec/veh): 26.5  
Optimal Cycle: 79 Level Of Service: C

Street Name: Santa Clara / Vicente Portola  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Include Protected Protected  
Rights: 23 23 23 23 23 23 9 36 36 9 36 36  
Min. Green: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Y+R: 0 0 1 0 0 0 1 0 0 1 0 1 0 1 0 1 0  
Lanes: 0 0 1 0 0 0 0 1 0 0 1 0 1 0 1 0 1 0

Volume Module:

Base Vol:	18	264	86	82	202	30	24	1057	17	120	859	81
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	18	264	86	82	202	30	24	1057	17	120	859	81
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	19	278	91	86	213	32	25	1113	18	126	904	85
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	19	278	91	86	213	32	25	1113	18	126	904	85
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	19	278	91	86	213	32	25	1113	18	126	904	85

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.93	0.93	0.65	0.65	0.65	0.93	0.93	0.93	0.93	0.92	0.92
Lanes:	0.05	0.72	0.23	0.26	0.64	0.10	1.00	1.97	0.03	1.00	1.83	0.17
Final Sat.:	86	1263	412	324	799	119	1769	3475	56	1769	3191	301

Capacity Analysis Module:

Vol/Sat:	0.22	0.22	0.22	0.27	0.27	0.27	0.01	0.32	0.32	0.07	0.28	0.28
Crit Moves:	0.30	0.30	0.30	0.30	0.30	0.30	0.11	0.45	0.45	0.11	0.45	0.45
Green/Cycle:	0.73	0.73	0.73	0.89	0.89	0.89	0.13	0.71	0.71	0.63	0.63	0.63
Volume/Cap:	33.9	33.9	33.9	52.0	52.0	52.0	33.3	20.5	20.5	48.4	18.8	18.8
Delay/Veh:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
User DelAdj:	33.9	33.9	33.9	52.0	52.0	52.0	33.3	20.5	20.5	48.4	18.8	18.8
AdjDel/Veh:	10	10	10	11	11	11	1	13	13	4	11	11
LOS by Move:	C	C	C	D	D	D	C	C	C	D	B	B
HCM2kAvgQ:	10	10	10	11	11	11	1	13	13	4	11	11

Note: Queue reported is the number of cars per lane.

Existing AM Mon Jan 4, 2010 08:59:12 Page 5-1

19th Ave CS  
Existing

Level of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1030 Junipero Serra / Sloat / West Portal / St. Francis

Cycle (sec): 105 Critical Vol./Cap.(X): 0.964  
Loss Time (sec): 16 Average Delay (sec/veh): 65.2  
Optimal Cycle: 155 Level Of Service: E

Street Name: Junipero Serra / West Portal Sloat / St. Francis  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Include Permitted Split Phase  
Rights: 16 48 48 27 27 27 20 20 20 20 20 20 20  
Min. Green: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Y+R: 3 0 1 0 0 0 2 1 0 3 0 1 0 1 0 1 0  
Lanes: 3 0 1 0 0 0 2 1 0 3 0 1 0 1 0 1 0

Volume Module:

Base Vol:	972	1137	20	0	1092	176	646	416	322	23	347	8
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	972	1137	20	0	1092	176	646	416	322	23	347	8
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	1023	1197	21	0	1149	185	680	438	0	24	365	8
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1023	1197	21	0	1149	185	680	438	0	24	365	8
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	1023	1197	21	0	1149	185	680	438	0	24	365	8

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.89	0.92	0.92	1.00	0.88	0.88	0.89	0.97	1.00	0.93	0.93	0.93
Lanes:	3.00	1.97	0.03	0.00	2.58	0.42	3.00	1.00	1.00	0.12	1.84	0.04
Final Sat.:	5096	3432	60	0	4329	698	5096	1843	1900	214	3228	74

Capacity Analysis Module:

Vol/Sat:	0.20	0.35	0.35	0.00	0.27	0.27	0.13	0.24	0.00	0.11	0.11	0.11
Crit Moves:	0.18	0.44	0.44	0.00	0.26	0.26	0.22	0.22	0.00	0.19	0.19	0.19
Green/Cycle:	1.10	0.79	0.79	0.00	1.03	1.03	0.62	1.10	0.00	0.59	0.59	0.59
Volume/Cap:	102.1	29.5	29.5	0.0	72.9	72.9	39.7	114	0.0	42.6	42.6	42.6
Delay/Veh:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
User DelAdj:	102.1	29.5	29.5	0.0	72.9	72.9	39.7	114	0.0	42.6	42.6	42.6
AdjDel/Veh:	16	18	18	0	23	23	8	23	0	7	7	7
LOS by Move:	F	C	C	A	E	E	D	F	A	D	D	D
HCM2kAvgQ:	16	18	18	0	23	23	8	23	0	7	7	7

Note: Queue reported is the number of cars per lane.

Existing AM	Mon Jan 4, 2010 08:59:12										Page 6-1
-----											
19th Ave CS											
Existing											
-----											
Level Of Service Computation Report											
2000 HCM Operations Method (Base Volume Alternative)											
*****											
Intersection #1040 Junipero Serra / Ocean / Eucalyptus											
*****											
Cycle (sec):	100	Critical Vol./Cap.(X):		0.795							
Loss Time (sec):	14	Average Delay (sec/veh):		31.7							
Optimal Cycle:	100	Level Of Service:		C							
*****											
Street Name:	Junipero Serra	Ocean / Eucalyptus									
Approach:	North Bound	South Bound	East Bound	West Bound							
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
-----											
Control:	Protected	Protected	Protected	Protected	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted
Rights:	Include	Include	Include	Include	Ovl	Ovl	Ovl	Ovl	Ovl	Ovl	Ovl
Min. Green:	11 43 43	16 48 48	27 27 27	27 27 27	27 27 27	27 27 27	27 27 27	27 27 27	27 27 27	27 27 27	27 27 27
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	1 0 2 1 0	2 0 2 1 0	0 1 0 1 0	1 0 1 0 1	0 1 0 0 1	0 1 0 0 1	0 1 0 0 1	0 1 0 0 1	0 1 0 0 1	0 1 0 0 1	0 1 0 0 1
-----											
Volume Module:											
Base Vol:	189 1678	46 326 1061	90 85 384	45 54 366	324						
Growth Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00						
Initial Bse:	189 1678	46 326 1061	90 85 384	45 54 366	324						
User Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00						
PHF Adj:	0.95 0.95	0.95 0.95 0.95	0.95 0.95 0.95	0.95 0.95 0.95	0.95						
PHF Volume:	199 1766	48 343 1117	95 89 404	47 57 385	341						
Reduct Vol:	0 0 0	0 0 0	0 0 0	0 0 0	0						
Reduced Vol:	199 1766	48 343 1117	95 89 404	47 57 385	341						
PCE Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00						
MLF Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00						
FinalVolume:	199 1766	48 343 1117	95 89 404	47 57 385	341						
-----											
Saturation Flow Module:											
Sat/Lane:	1900 1900	1900 1900	1900 1900	1900 1900	1900						
Adjustment:	0.92 0.88	0.88 0.91 0.89	0.89 0.58 0.58	0.83 1.12 1.12	0.83						
Lanes:	1.00 2.92	0.08 2.00 2.77	0.23 0.36 1.64	1.00 0.13 0.87	1.00						
Final Sat:	1751 4879	134 3466 4676	397 402 1818	1583 275 1862	1583						
-----											
Capacity Analysis Module:											
Vol/Sat:	0.11 0.36	0.36 0.10 0.24	0.24 0.22 0.22	0.03 0.21 0.21	0.22						
Crit Moves:	***	***	***	***	***						
Green/Cycle:	0.11 0.43	0.43 0.16 0.48	0.48 0.27 0.27	0.38 0.27 0.27	0.43						
Volume/Cap:	1.03 0.84	0.84 0.62 0.50	0.50 0.82 0.82	0.08 0.77 0.77	0.50						
Delay/Veh:	118.2 26.1	26.1 44.3 14.9	14.9 46.4 46.4	20.1 43.0 43.0	23.3						
User DelAdj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00						
AdjDel/Veh:	118.2 26.1	26.1 44.3 14.9	14.9 46.4 46.4	20.1 43.0 43.0	23.3						
LOS by Move:	F C C	C C C	B B B	D D D	C C C						
HCM2kAvgQ:	8 17 17	5 7 7	10 10 10	1 14 14	8						
*****											
Note: Queue reported is the number of cars per lane.											
*****											

Existing AM	Mon Jan 4, 2010 08:59:12										Page 7-1
-----											
19th Ave CS											
Existing											
-----											
Level Of Service Computation Report											
2000 HCM Operations Method (Base Volume Alternative)											
*****											
Intersection #1050 Junipero Serra / Winston / Mercedes											
*****											
Cycle (sec):	100	Critical Vol./Cap.(X):		0.581							
Loss Time (sec):	14	Average Delay (sec/veh):		29.1							
Optimal Cycle:	100	Level Of Service:		C							
*****											
Street Name:	Junipero Serra	Winston / Mercedes									
Approach:	North Bound	South Bound	East Bound	West Bound							
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	
-----											
Control:	Protected	Protected	Protected	Protected	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	
Rights:	WideBypass	Include	Include	Include	Include	Include	Include	Include	Include	Include	
Min. Green:	19 40 40	19 40 40	27 27 27	27 27 27	27 27 27	27 27 27	27 27 27	27 27 27	27 27 27	27 27 27	
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	
Lanes:	1 0 2 1 0	1 0 2 1 0	1 0 1 0 1	1 0 1 0 1	1 0 1 0 1	1 0 1 0 1	1 0 1 0 1	1 0 1 0 1	1 0 1 0 1	1 0 1 0 1	
-----											
Volume Module:											
Base Vol:	186 1681	29 103 1024	72 80 63	73 64 147	62						
Growth Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00						
Initial Bse:	186 1681	29 103 1024	72 80 63	73 64 147	62						
User Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00						
PHF Adj:	0.95 0.95	0.95 0.95 0.95	0.95 0.95 0.95	0.95 0.95 0.95	0.95						
PHF Volume:	196 1769	31 108 1078	76 84 66	77 67 155	65						
Reduct Vol:	0 0 0	0 0 0	0 0 0	0 0 0	0						
Reduced Vol:	196 1769	31 108 1078	76 84 66	77 67 155	65						
PCE Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00						
MLF Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00						
FinalVolume:	196 1769	31 108 1078	76 84 66	77 67 155	65						
-----											
Saturation Flow Module:											
Sat/Lane:	1900 1900	1900 1900	1900 1900	1900 1900	1900	1900	1900	1900	1900	1900	
Adjustment:	0.93 0.89	0.89 0.93 0.88	0.88 0.59 0.98	0.83 0.70 0.98	0.83	0.70 0.98	0.83	0.70 0.98	0.83	0.70 0.98	
Lanes:	1.00 2.95	0.05 1.00 2.80	0.20 1.00 1.00	1.00 1.00 1.00	1.00	1.00 1.00 1.00	1.00	1.00 1.00 1.00	1.00	1.00 1.00 1.00	
Final Sat:	1769 4982	86 1769 4702	331 1115 1862	1583 1331 1862	1583	1331 1862	1583	1331 1862	1583	1331 1862	
-----											
Capacity Analysis Module:											
Vol/Sat:	0.11 0.36	0.36 0.06 0.23	0.23 0.08 0.04	0.05 0.05 0.08	0.04	0.05 0.08	0.04	0.05 0.08	0.04	0.05 0.08	
Crit Moves:	****	****	****	****	****	****	****	****	****	****	
Green/Cycle:	0.19 0.40	0.40 0.19 0.40	0.40 0.27 0.27	0.27 0.27 0.27	0.27	0.27 0.27	0.27	0.27 0.27	0.27	0.27 0.27	
Volume/Cap:	0.58 0.89	0.89 0.32 0.57	0.57 0.28 0.13	0.18 0.19 0.31	0.15	0.19 0.31	0.15	0.19 0.31	0.15	0.19 0.31	
Delay/Veh:	44.1 31.2	31.2 37.5 22.1	22.1 31.1 28.2	28.9 29.2 30.6	28.5	29.2 30.6	28.5	29.2 30.6	28.5	29.2 30.6	
User DelAdj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00	1.00 1.00 1.00	1.00	1.00 1.00 1.00	1.00	1.00 1.00 1.00	
AdjDel1/Veh:	44.1 31.2	31.2 37.5 22.1	22.1 31.1 28.2	28.9 29.2 30.6	28.5	29.2 30.6	28.5	29.2 30.6	28.5	29.2 30.6	
LOS by Move:	D C C	C D C	C D C	C C C	C	C C C	C	C C C	C	C C C	
HCM2RAVGQ:	5 19	19 3 9	9 2 1	2 2 4	2	2 2 4	2	2 2 4	2	2 2 4	
*****											
Note: Queue reported is the number of cars per lane.											
*****											

# Level Of Service Computation Report

## 2000 HCM Operations Method (Base Volume Alternative)

```

Intersection #1070 Junipero Serra / 19th
*****
Cycle (sec):      90      Critical Vol./Cap. (X):      0.886
Loss Time (sec):      0      Average Delay (sec/veh):      57.9
Optimal Cycle:      163      Level Of Service:      E
*****

```

Street Name:	Junipero Serra											
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Ignore			Ovl			Include		
Min. Green:	46	46	46	18	18	18	9	9	9	9	9	9
Y-R:	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
Lanes:	2	1	0	1	0	1	0	0	1	0	3	1

Volume Module:												
Base Vol:	2208	1679	8	0	1210	4	0	71	3047	32	56	62
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	2208	1679	8	0	1210	4	0	71	3047	32	56	62
User Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.00	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	2324	1767	8	0	1274	0	0	75	3207	34	59	65
Reduc Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	2324	1767	8	0	1274	0	0	75	3207	34	59	65
PCE Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	2324	1767	8	0	1274	0	0	75	3207	34	59	65

Saturation Flow Module:							
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.97	0.90	0.90	0.91	0.89	0.91	0.90
Lanes:	2.20	1.79	0.01	0.00	4.00	0.00	0.00
Final Sat.:	4043	3074	15	0	6778	0	1862
							4596
							827
							814
							901

Capacity Analysis Module:										
Vol/Sat:	0.57	0.57	0.57	0.00	0.19	0.00	0.00	0.04	0.70	0.07
Crit Moves:	***	***	***	***	***	***	***	***	***	***
Green/Cycle:	0.51	0.51	0.51	0.20	0.20	0.20	0.10	0.10	0.67	0.10
Volumes/Cap:	1.13	1.13	1.13	0.00	0.94	0.00	0.00	0.40	1.05	0.41
Delay/Veh:	77.9	77.9	77.9	0.0	49.2	0.0	0.0	44.3	35.9	52.2
User DelatAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	77.9	77.9	77.9	0.0	49.2	0.0	0.0	44.3	35.9	52.2
LOS by Move:	E	E	A	D	A	A	D	D	E	E
L2M2kAvg:	50	46	46	0	12	0	2	47	1	5
*****										
Note: Queue reported is the number of cars per lane.										
*****										

# Level Of Service Computation Report

```

*****
Intersection #1060 Junipero Serra / Holloway
*****
Cycle (sec):      100      Critical Vol./Cap.(X):      0.630
Loss Time (sec):   14      Average Delay (sec/veh):    29.8
Optimal Cycle:     100      Level Of Service:      C
*****

```

Street Name:	Junipero Serra				Holloway				
Approach:	North Bound		South Bound		East Bound		West Bound		
Movement:	L	T	R	L	T	R	L	T	R
Control:	Protected		Protected		Permitted		Permitted		
Rights:	Include		Include		Include		Include		
Min. Green:	19	39	39	19	39	39	28	28	28
Y-Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	2	1	0	2	1	0	1

Volume Module:												
Base Vol:	234	1520	60	114	956	84	163	106	16	162	129	118
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	234	1520	60	114	956	84	163	106	16	162	129	118
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	246	1600	63	120	1006	88	172	112	17	171	136	124
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	246	1600	63	120	1006	88	172	112	17	171	136	124
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	246	1600	63	120	1006	88	172	112	17	171	136	124

Saturation Flow Module:												
SSat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.89	0.89	0.93	0.88	0.88	0.62	0.98	0.83	0.67	0.98	0.83
Lanes:	1.00	2.89	0.11	1.00	2.76	0.24	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1769	4861	192	1769	4617	406	1184	1862	1583	1264	1862	1593

Capacity Analysis Module:												
Vol/Sat:	0.14	0.33	0.33	0.07	0.22	0.22	0.14	0.06	0.01	0.13	0.07	0.08
Crit Moves:	****	****	****	****	****	****	****	****	****	****	****	****
Green/Cycle:	0.19	0.39	0.39	0.19	0.39	0.39	0.28	0.28	0.28	0.28	0.28	0.28
Volume/Cap:	0.73	0.84	0.84	0.36	0.56	0.56	0.52	0.21	0.04	0.48	0.26	0.28
Delay/Ven:	51.3	29.7	29.7	39.1	22.7	22.7	36.0	28.5	26.4	34.6	29.2	29.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	51.3	29.7	29.7	38.1	22.7	22.7	36.0	28.5	26.4	34.6	29.2	29.7
CLOS by Move:	D	C	C	D	C	C	D	C	C	C	C	C
HCM2 kAvgQ:	6	15	15	3	8	8	5	3	0	5	3	3
*****												
Note: Queue reported is the number of cars per lane.												
*****												



Level Of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)  
Intersection #1080 Junipero Serra / I-280 NB On-Ramp / John Daly  
Cycle (sec): 125 Critical Vol./Cap.(X): 0.751  
Loss Time (sec): 12 Average Delay (sec/veh): 39.7  
Optimal Cycle: 71 Level Of Service: D

Street Name: Junipero Serra / I-280 NB On-Ramp John Daly  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Split Phase Split Phase Split Phase Split Phase  
Rights: Ovl Include Include Include  
Min. Green: 6 6 6 6 31 31 31 6 6 6  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 2 0 1 1 1 0 0 1 1 2 1 0 1 1 1 2 0 1

Volume Module:  
Base Vol: 337 335 104 169 262 665 779 99 59 746 303  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 337 335 364 104 169 262 665 779 99 59 746 303  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 335 353 383 109 178 276 700 820 104 62 785 319  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Final Volume: 335 353 383 109 178 276 700 820 104 62 785 319

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.90 0.86 0.86 0.93 0.89 0.89 0.88 0.90 0.90 0.89 0.89 0.83  
Lanes: 2.00 1.44 1.56 1.00 0.78 1.22 2.00 2.00 1.00 1.00 3.00 1.00  
Final Sat.: 3432 2345 2548 1769 1327 2058 3326 3429 1714 1688 5063 1583

Capacity Analysis Module:  
Vol/Sat: 0.10 0.15 0.15 0.06 0.13 0.13 0.21 0.24 0.06 0.04 0.16 0.20  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.20 0.20 0.41 0.18 0.18 0.50 0.32 0.32 0.32 0.21 0.21 0.39  
Volume/Cap: 0.52 0.75 0.37 0.35 0.75 0.27 0.66 0.75 0.19 0.18 0.75 0.52  
Delay/Veh: 45.3 50.3 26.0 45.6 53.9 18.3 37.4 39.7 30.9 40.9 49.4 30.4  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 45.3 50.3 26.0 45.6 53.9 18.3 37.4 39.7 30.9 40.9 49.4 30.4  
LOS by Move: D D C D D B D C D C D C D C  
HCM2kAvgQ: 7 11 7 4 10 5 12 15 3 2 12 10

Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

Level Of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)  
Intersection #1090 Junipero Serra / I-280 SB On-Ramp / John Daly  
Cycle (sec): 120 Critical Vol./Cap.(X): 0.544  
Loss Time (sec): 8 Average Delay (sec/veh): 19.8  
Optimal Cycle: 35 Level Of Service: B

Street Name: Junipero Serra / I-280 SB On-Ramp John Daly  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Split Phase Split Phase Split Phase Split Phase  
Rights: Ovl Include Include Include  
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 0 2 0 0 0 0 0 0 2 0 2 0 0 0

Volume Module:  
Base Vol: 0 0 316 0 0 0 0 0 1227 419 499 1001 0  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 0 0 316 0 0 0 0 0 1227 419 499 1001 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 0 0 333 0 0 0 0 0 1292 441 525 0 0  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Final Volume: 0 0 333 0 0 0 0 0 1292 441 525 0 0

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 1.00 0.73 1.00 1.00 1.00 1.00 1.00 0.86 0.86 0.90 0.95  
Lanes: 0.00 0.00 2.00 0.00 0.00 0.00 0.00 0.00 2.24 0.76 2.00 2.00  
Final Sat.: 0 0 2786 0 0 0 0 0 3645 1245 3432 3610 0

Capacity Analysis Module:  
Vol/Sat: 0.00 0.00 0.12 0.00 0.00 0.00 0.00 0.00 0.35 0.35 0.15 0.00  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.00 0.28 0.00 0.00 0.00 0.00 0.00 0.65 0.65 0.28 0.00  
Volume/Cap: 0.00 0.00 0.42 0.00 0.00 0.00 0.00 0.00 0.54 0.54 0.54 0.00  
Delay/Veh: 0.0 0.0 35.5 0.0 0.0 0.0 0.0 0.0 11.5 11.5 37.2 0.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 0.0 35.5 0.0 0.0 0.0 0.0 0.0 11.5 11.5 37.2 0.0  
LOS by Move: A A D A A A A B B D A A  
HCM2kAvgQ: 0 0 6 0 0 0 0 0 13 13 8 0

Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

Level Of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)  
Intersection #100 19th / Taraval  
Cycle (sec): 90 Critical Vol./Cap. (X): 0.771  
Loss Time (sec): 10 Average Delay (sec/veh): 19.7  
Optimal Cycle: 89 Level Of Service: B  
\*\*\*\*\*

Street Name: 19th  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 56 56 56 56 23 23 23 23  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 1 1 0 0 1 0 0 1 0 0

Volume Module:  
Base Vol: 0 2276 57 2 2658 58 2 203 50 0 228 50  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 0 2276 57 2 2658 58 2 203 50 0 228 50  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 0 2396 60 2 2798 61 2 214 53 0 240 53  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2396 60 2 2798 61 2 214 53 0 240 53  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2396 60 2 2798 61 2 214 53 0 240 53

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 0.84 0.84 0.86 0.86 0.91 0.91  
Lanes: 0.00 2.93 0.07 0.01 2.93 0.06 0.02 1.59 0.39 0.00 1.64 0.36  
Final Sat.: 0 4939 124 4 4659 102 26 2603 641 0 2823 619

Capacity Analysis Module:  
Vol/Sat: 0.00 0.49 0.49 0.60 0.60 0.60 0.08 0.08 0.09 0.09  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.63 0.63 0.63 0.63 0.26 0.26 0.26 0.00 0.26 0.26  
Volume/Cap: 0.00 0.77 0.77 0.95 0.95 0.32 0.32 0.32 0.00 0.33 0.33  
Delay/Veh: 0.0 13.6 13.6 23.3 23.3 28.2 28.2 28.2 0.0 28.3 28.3  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 13.6 13.6 23.3 23.3 28.2 28.2 28.2 0.0 28.3 28.3  
LOS by Move: A B C C C C C C A C C  
HCM2kAvgQ: 0 19 19 32 32 32 3 3 0 4 4  
Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

Level Of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)  
Intersection #110 19th / Sloat  
Cycle (sec): 90 Critical Vol./Cap. (X): 1.429  
Loss Time (sec): 9 Average Delay (sec/veh): 58.1  
Optimal Cycle: 180 Level Of Service: E  
\*\*\*\*\*

Street Name: 19th  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 33 33 33 12 49 49 4 32 32 23 23 23  
Y+R: 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0  
Lanes: 0 0 2 1 0 1 0 2 1 0 1 1 1 0 0 0 3 0 1

Volume Module:  
Base Vol: 0 1964 25 312 2778 127 247 1029 62 0 873 403  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 0 1964 25 312 2778 127 247 1029 62 0 873 403  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 0 2067 26 328 2924 134 260 1083 65 0 919 424  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2067 26 328 2924 134 260 1083 65 0 919 424  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2067 26 328 2924 134 260 1083 65 0 919 424

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 0.93 0.89 0.88 0.53 0.88 0.87 1.00 0.89 0.69  
Lanes: 0.00 2.96 0.04 1.00 2.87 0.13 1.00 2.83 0.17 0.00 3.00 1.00  
Final Sat.: 0 5009 64 1769 4826 221 1014 4716 284 0 5083 1307

Capacity Analysis Module:  
Vol/Sat: 0.00 0.41 0.41 0.19 0.61 0.61 0.26 0.23 0.23 0.00 0.18 0.32  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.37 0.37 0.22 0.58 0.58 0.32 0.32 0.32 0.00 0.26 0.26  
Volume/Cap: 0.00 1.13 1.13 0.85 1.04 1.04 0.92 0.73 0.73 0.00 0.71 1.27  
Delay/Veh: 0.0 90.6 90.6 54.5 38.6 38.6 48.3 29.8 29.8 0.0 33.7 176.6  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 90.6 90.6 54.5 38.6 38.6 48.3 29.8 29.8 0.0 33.7 176.6  
LOS by Move: A F F D D D C C A C F  
HCM2kAvgQ: 0 34 34 12 43 42 11 12 12 0 10 25  
Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

Level Of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1120 19th / Ocean

Cycle (sec): 90 Critical Vol./Cap.(X): 0.968  
Loss time (sec): 9 Average Delay (sec/veh): 23.5  
Optimal Cycle: 144 Level Of Service: C

Street Name:		19th			Ocean					
Approach:		North Bound		South Bound		East Bound		West Bound		
Movement:		L	T	R	L	T	R	L	T	R
Control:		Permitted			Permitted			Permitted		
Rights:		WideBypass			WideBypass			Include		
Min. Green:		54	54	54	54	54	54	26	26	26
Y+R:		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:		0	0	2	1	0	0	1	0	0

Volume Module:										
Base Vol:	0	1812	45	0	2776	187	83	274	47	21
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	1812	45	0	2776	187	83	274	47	21
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	1907	47	0	2922	197	87	288	49	22
Reduc Vol:	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1907	47	0	2922	197	87	288	49	22
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	1907	47	0	2922	197	87	288	49	22

Saturation Flow Module:										
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.89	0.89	1.00	0.88	0.88	0.80	0.96	0.96	0.90
Lanes:	0.00	2.93	0.07	0.00	2.81	0.19	1.00	0.85	0.15	0.05
Final Sat:	0	4940	123	0	4720	318	1529	1554	267	88

Capacity Analysis Module:										
Vol/Sat:	0.00	0.39	0.39	0.00	0.62	0.62	0.06	0.19	0.19	0.25
Crit Moves:	***									
Green/Cycle:	0.00	0.61	0.61	0.00	0.61	0.61	0.29	0.29	0.29	0.29
Volume/Cap:	0.00	0.63	0.63	0.00	1.01	1.01	0.20	0.64	0.64	0.87
Delay/Veh:	0.0	7.1	7.1	0.0	29.1	29.1	25.1	33.9	33.9	49.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	7.1	7.1	0.0	29.1	29.1	25.1	33.9	33.9	49.1
LOS by Move:	A	A	A	A	C	C	C	C	D	D
HCM2kAvgQ:	0	8	8	0	34	34	2	9	9	15

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1130 19th / Eucalyptus

Cycle (sec): 90 Critical Vol./Cap.(X): 0.775  
Loss time (sec): 9 Average Delay (sec/veh): 14.3  
Optimal Cycle: 90 Level Of Service: B

Street Name:		19th										Eucalyptus					
Approach:		North Bound			South Bound			East Bound			West Bound						
Movement:		L	T	R	L	T	R	L	T	R	L	T	R				
Control:		Permitted			Permitted			Permitted			Permitted						
Rights:		Include			Include			Include			Include						
Min. Green:		56	56	56	56	56	56	25	25	25	25	25	25				
Y+R:		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Lanes:		0	0	2	1	0	0	2	1	0	1	0	0				

Volume Module:										
Base Vol:	0	1848	21	0	2818	58	74	125	90	10
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	1848	21	0	2818	58	74	125	90	10
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	1945	22	0	2966	61	78	132	95	11
Reduc Vol:	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1945	22	0	2966	61	78	132	95	11
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	1945	22	0	2966	61	78	132	95	11

Saturation Flow Module:										
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.89	0.89	1.00	0.89	0.89	0.71	0.71	0.71	0.95
Lanes:	0.00	2.97	0.03	0.00	2.94	0.06	1.00	1.16	0.84	0.06
Final Sat:	0	5016	57	0	4966	102	1344	1562	1125	105

Capacity Analysis Module:										
Vol/Sat:	0.00	0.39	0.39	0.00	0.60	0.60	0.06	0.08	0.08	0.10
Crit Moves:	***									
Green/Cycle:	0.00	0.62	0.62	0.00	0.62	0.62	0.28	0.28	0.28	0.28
Volume/Cap:	0.00	0.62	0.62	0.00	0.96	0.96	0.21	0.30	0.30	0.36
Delay/Veh:	0.0	6.4	6.4	0.0	17.4	17.4	25.2	26.4	26.4	28.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	6.4	6.4	0.0	17.4	17.4	25.2	26.4	26.4	28.1
LOS by Move:	A	A	A	A	B	B	C	C	C	C
HCM2kAvgQ:	0	8	8	0	25	25	2	3	3	4

Note: Queue reported is the number of cars per lane.







Level Of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)  
\*\*\*\*\*  
Intersection #1181 Chumassero / Brotherhood  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.924  
Loss Time (sec): 12 Average Delay (sec/veh): 77.5  
Optimal Cycle: 122 Level Of Service: E  
\*\*\*\*\*

Street Name: Chumassero Brotherhood  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Protected Protected  
Rights: Include Include Include Include  
Min. Green: 20 20 20 20 21 47 47 21 47 47  
Y+R: 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0  
Lanes: 0 0 1 0 0 0 0 1 0 0 1 0 1 0 1 0

Volume Module:  
Base Vol: 28 16 99 119 26 54 26 1494 44 175 1656 168  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 28 16 99 119 26 54 26 1494 44 175 1656 168  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 29 17 104 125 27 57 27 1573 46 184 1743 177  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 29 17 104 125 27 57 27 1573 46 184 1743 177  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 29 17 104 125 27 57 27 1573 46 184 1743 177

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.64 0.64 0.80 0.45 0.45 0.93 0.93 0.93 0.93 0.92 0.92  
Lanes: 0.23 0.13 0.64 0.60 0.13 0.27 1.00 1.94 0.06 1.00 1.82 0.18  
Final Sat.: 275 157 972 506 111 230 1769 3423 101 1769 3167 321

Capacity Analysis Module:  
Vol/Sat: 0.11 0.11 0.11 0.25 0.25 0.25 0.02 0.46 0.46 0.10 0.55 0.55  
Crit Moves: \*\*\*\*\*  
Green/Cycle: 0.20 0.20 0.20 0.20 0.20 0.21 0.47 0.47 0.21 0.47 0.47  
Volume/Cap: 0.54 0.54 0.54 1.24 1.24 1.24 0.07 0.98 0.98 0.50 1.17 1.17  
Delay/Veh: 43.0 43.0 43.0 187.4 187 187.4 32.1 38.4 38.4 39.5 105 105.4  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 43.0 43.0 43.0 187.4 187 187.4 32.1 38.4 38.4 39.5 105 105.4  
LOS by Move: D D D F F F C D D D F F  
HCM2kAVGQ: 4 4 5 14 14 14 1 32 32 5 52 52

Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

Level Of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)  
\*\*\*\*\*  
Intersection #1190 Sunset / Taraval  
\*\*\*\*\*  
Cycle (sec): 60 Critical Vol./Cap.(X): 0.677  
Loss Time (sec): 10 Average Delay (sec/veh): 17.7  
Optimal Cycle: 60 Level Of Service: B  
\*\*\*\*\*

Street Name: Sunset Taraval  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 29 29 29 29 29 29 21 21 21 21 21 21  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 0 2 1 0 1 0 1 0 1 0

Volume Module:  
Base Vol: 0 2021 17 0 1965 11 79 190 53 83 169 38  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 0 2021 17 0 1965 11 79 190 53 83 169 38  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 0 2127 18 0 2068 12 83 200 56 87 178 40  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 0 2127 18 0 2068 12 83 200 56 87 178 40  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2127 18 0 2068 12 83 200 56 87 178 40

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 1.00 0.89 0.89 0.59 0.95 0.95 0.54 0.95 0.95  
Lanes: 0.00 2.97 0.03 0.00 2.98 0.02 1.00 0.78 0.22 1.00 0.82 0.18  
Final Sat.: 0 5036 42 0 5050 28 1125 1408 393 1028 1478 332

Capacity Analysis Module:  
Vol/Sat: 0.00 0.42 0.42 0.00 0.41 0.41 0.07 0.14 0.14 0.09 0.12 0.12  
Crit Moves: \*\*\*\*\*  
Green/Cycle: 0.00 0.48 0.48 0.00 0.48 0.48 0.35 0.35 0.35 0.35 0.35 0.35  
Volume/Cap: 0.00 0.87 0.87 0.00 0.85 0.85 0.21 0.41 0.41 0.24 0.34 0.34  
Delay/Veh: 0.0 18.6 18.6 0.0 17.4 17.4 14.9 16.7 16.7 15.5 15.9 15.9  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 18.6 18.6 0.0 17.4 17.4 14.9 16.7 16.7 15.5 15.9 15.9  
LOS by Move: A B B A B B B B B B B B  
HCM2kAVGQ: 0 17 17 0 16 16 1 4 4 1 3 3

Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*



Level Of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)  
\*\*\*\*\*  
Intersection #1200 Sunset / Ocean  
\*\*\*\*\*  
Cycle (sec): 60 Critical Vol./Cap.(X): 0.596  
Loss Time (sec): 9 Average Delay (sec/veh): 11.8  
Optimal Cycle: 59 Level Of Service: B  
\*\*\*\*\*  
Street Name: Sunset Ocean  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include Include Include  
Min. Green: 31 31 31 31 31 31 19 19 19 19 19 19  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 0 2 1 0 0 1 0 1 0 1  
\*\*\*\*\*  
Volume Module:  
Base Vol: 0 1318 12 0 1735 81 54 83 18 47 23 192  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 0 1318 12 0 1735 81 54 83 18 47 23 192  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 0 1387 13 0 1826 85 57 87 19 49 24 202  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 1387 13 0 1826 85 57 87 19 49 24 202  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Final Volume: 0 1387 13 0 1826 85 57 87 19 49 24 202  
\*\*\*\*\*  
Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 1.00 0.89 0.89 0.86 0.86 0.72 0.98 0.83  
Lanes: 0.00 2.97 0.03 0.00 2.87 0.13 0.35 0.53 0.12 1.00 1.00 1.00  
Final Sat.: 0 5032 46 0 4823 225 571 878 190 1363 1862 1583  
\*\*\*\*\*  
Capacity Analysis Module:  
Vol/Sat: 0.00 0.28 0.28 0.00 0.38 0.38 0.10 0.10 0.10 0.04 0.01 0.13  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.53 0.53 0.00 0.53 0.53 0.32 0.32 0.32 0.32 0.32  
Volume/Cap: 0.00 0.52 0.52 0.00 0.71 0.71 0.31 0.31 0.31 0.11 0.04 0.40  
Delay/Veh: 0.0 9.7 9.7 0.0 12.1 12.1 17.1 17.1 17.1 15.1 14.3 18.5  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 9.7 9.7 0.0 12.1 12.1 17.1 17.1 17.1 15.1 14.3 18.5  
LOS by Move: A A A A B B B B B B B B  
HCM2kAvgQ: 0 6 6 0 11 11 3 3 3 1 0 3  
\*\*\*\*\*  
Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

Level Of Service Computation Report  
2000 HCM 4-Way Stop Method (Base Volume Alternative)  
\*\*\*\*\*  
Intersection #1210 Skyline / Sloat / 39th  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.577  
Loss Time (sec): 0 Average Delay (sec/veh): 14.5  
Optimal Cycle: 0 Level Of Service: B  
\*\*\*\*\*  
Street Name: Skyline / 39th Sloat  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Stop Sign Stop Sign Stop Sign Stop Sign  
Rights: Ignore Include Ignore Include Include Include  
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0  
Lanes: 0 1 0 0 2 0 0 0 1 0 0 0 2 0 1 2 0 1 1 0  
\*\*\*\*\*  
Volume Module:  
Base Vol: 251 0 646 0 14 7 0 332 194 341 280 60  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 251 0 646 0 14 7 0 332 194 341 280 60  
User Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.00 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 264 0 0 0 15 7 0 349 0 359 295 63  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 264 0 0 0 15 7 0 349 0 359 295 63  
PCE Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Final Volume: 264 0 0 15 7 0 349 0 359 295 63  
\*\*\*\*\*  
Saturation Flow Module:  
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Lanes: 1.00 0.00 2.00 0.00 0.67 0.33 0.00 2.00 1.00 2.00 1.65 0.35  
Final Sat.: 458 0 1061 0 296 148 0 954 518 983 881 193  
\*\*\*\*\*  
Capacity Analysis Module:  
Vol/Sat: 0.58 xxxxx 0.00 xxxxx 0.05 0.05 xxxxx 0.37 0.00 0.37 0.33 0.33  
Crit Moves: \*\*\*\*  
Delay/Veh: 19.6 0.0 0.0 0.0 10.8 10.8 0.0 13.9 0.0 13.8 12.4 12.1  
AdjDel/Veh: 19.6 0.0 0.0 0.0 10.8 10.8 0.0 13.9 0.0 13.8 12.4 12.1  
LOS by Move: C \* \* B B \* B B B  
ApproachDel: 19.6 10.8 13.9 13.1  
Delay Adj: 1.00 1.00 1.00 1.00  
ApprAdjDel: 19.6 10.8 13.9 13.1  
LOS by Appr: C B B B B B  
AllwayAvgQ: 1.2 1.2 0.0 0.0 0.0 0.0 0.0 0.5 0.0 0.5 0.5 0.5  
\*\*\*\*\*  
Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

Level Of Service Computation Report  
2000 HCM Unsignalized Method (Base Volume Alternative)  
\*\*\*\*\*  
Intersection #1222 Skyline / Lake Merced (WBLT)  
\*\*\*\*\*  
Average Delay (sec/veh): 1.0 Worst Case Level Of Service: D[ 29.3]  
\*\*\*\*\*  
Street Name: Skyline  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Uncontrolled Uncontrolled Uncontrolled Stop Sign Stop Sign  
Rights: Include Include Include Include Include  
Lanes: 1 0 1 1 0 0 0 2 0 1 0 0 0 0 1 0 1 0 0  
Volume Module:  
Base Vol: 5 814 90 0 423 33 0 0 0 43 5 0  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 5 814 90 0 423 33 0 0 0 43 5 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 5 857 95 0 445 35 0 0 0 45 5 0  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
FinalVolume: 5 857 95 0 445 35 0 0 0 45 5 0  
Critical Gap Module:  
Critical Gap: 4.1 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx 6.8 6.5 xxxxx  
FollowUpTm: 2.2 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx 3.5 4.0 xxxxx  
Capacity Module:  
Conflict Vol: 480 xxxxx xxxxx xxxxx xxxxx xxxxx 1137 1395 xxxxx  
Potent Cap.: 1079 xxxxx xxxxx xxxxx xxxxx xxxxx 195 140 xxxxx  
Move Cap.: 1079 xxxxx xxxxx xxxxx xxxxx xxxxx 195 140 xxxxx  
Volume/Cap: 0.00 xxxxx xxxxx xxxxx xxxxx xxxxx 0.23 0.04 xxxxx  
Level Of Service Module:  
2Way95thQ: 0.0 xxxxx xxxxx xxxxx xxxxx xxxxx 0.9 0.1 xxxxx  
Control Del: 8.4 xxxxx xxxxx xxxxx xxxxx xxxxx 29.0 31.8 xxxxx  
LOS by Move: A \* \* \* \* \* \* \* D \*  
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Shared Cap.: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
SharedQueue: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
Shrd ConDel: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
Shared LOS: \* \* \* \* \* \* \* \* \* \*  
ApproachDel: xxxxxx xxxxxx 29.3  
ApproachLOS: \*  
Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

Level Of Service Computation Report  
2000 HCM Unsignalized Method (Base Volume Alternative)  
\*\*\*\*\*  
Intersection #1221 Skyline / Lake Merced (WBR)  
\*\*\*\*\*  
Average Delay (sec/veh): 1.3 Worst Case Level Of Service: B[ 11.9]  
\*\*\*\*\*  
Street Name: Skyline  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Uncontrolled Uncontrolled Uncontrolled Stop Sign Stop Sign  
Rights: Include Include Include Include Include  
Lanes: 0 0 2 0 0 1 0 2 0 0 0 0 0 0 0 0 0 1  
Volume Module:  
Base Vol: 0 814 0 90 456 0 0 0 0 0 0 0 0 75  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 0 814 0 90 456 0 0 0 0 0 0 0 0 75  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Volume: 0 814 0 90 456 0 0 0 0 0 0 0 0 75  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0  
FinalVolume: 0 814 0 90 456 0 0 0 0 0 0 0 0 75  
Critical Gap Module:  
Critical Gap: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx 6.9  
FollowUpTm: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx 3.3  
Capacity Module:  
Conflict Vol: xxxxx xxxxx 814 xxxxx xxxxx xxxxx xxxxx 407  
Potent Cap.: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx 593  
Move Cap.: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx 593  
Volume/Cap: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx 0.13  
Level Of Service Module:  
2Way95thQ: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx 0.4  
Control Del: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx 11.9  
LOS by Move: \* \* \* \* \* \* \* B  
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Shared Cap.: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
SharedQueue: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
Shrd ConDel: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
Shared LOS: \* \* \* \* \* \* \* \* \* \*  
ApproachDel: xxxxxx 11.9  
ApproachLOS: \*  
Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*





Level of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)  
\*\*\*\*\*  
Intersection #1250 Lake Merced / Font  
\*\*\*\*\*  
Cycle (sec): 90 Critical Vol./Cap.(X): 0.686  
Loss Time (sec): 7 Average Delay (sec/veh): 39.1  
Optimal Cycle: 90 Level of Service: D  
\*\*\*\*\*

Street Name: Lake Merced Font  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Protected Split Phase Split Phase  
Rights: Ignore Include Include Include  
Min. Green: 43 43 15 61 0 0 0 22 0 22 0 22  
Y+R: 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0  
Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 0 1 0 0 0 1

Volume Module:  
Base Vol: 0 1746 48 147 1549 0 0 0 0 43 0 304  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 0 1746 48 147 1549 0 0 0 0 43 0 304  
User Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.00 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 0 1838 0 155 1631 0 0 0 0 45 0 320  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 1838 0 155 1631 0 0 0 0 45 0 320  
PCE Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 1838 0 155 1631 0 0 0 0 45 0 320

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 1.00 0.93 0.93 1.00 0.93 1.00 0.83  
Lanes: 0.00 2.00 1.00 1.00 2.00 0.00 0.00 0.00 1.00  
Final Sat.: 0 3538 1900 1769 3538 0 0 0 1769 0 1583

Capacity Analysis Module:  
Vol/Sat: 0.00 0.52 0.00 0.09 0.46 0.00 0.00 0.00 0.00 0.03 0.00 0.20  
Crit Moves: \*\*\*\*\*  
Green/Cycle: 0.00 0.48 0.00 0.17 0.64 0.00 0.00 0.00 0.00 0.29 0.00 0.29  
Volume/Cap: 0.00 1.09 0.00 0.52 0.72 0.00 0.00 0.00 0.00 0.09 0.00 0.69  
Delay/Veh: 0.0 68.5 0.0 40.8 6.8 0.0 0.0 0.0 0.0 23.3 0.0 36.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 68.5 0.0 40.8 6.8 0.0 0.0 0.0 0.0 23.3 0.0 36.0  
LOS by Move: A E A D A A A A A C A D  
HCM2kAVGQ: 0 41 0 4 10 0 0 0 0 1 0 9

Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

Level of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)  
\*\*\*\*\*  
Intersection #1263 Lake Merced / Higuera  
\*\*\*\*\*  
Cycle (sec): 90 Critical Vol./Cap.(X): 0.711  
Loss Time (sec): 11 Average Delay (sec/veh): 66.9  
Optimal Cycle: 90 Level of Service: E  
\*\*\*\*\*

Street Name: Lake Merced Higuera  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Protected Split Phase Split Phase  
Rights: Include Include Include Include  
Min. Green: 41 41 41 11 59 59 0 0 0 20 20 20  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 1 0 1 0 2 0 0 0 0 0 1 0 0 0 1

Volume Module:  
Base Vol: 0 1694 144 41 1601 0 0 0 0 77 0 58  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 0 1694 144 41 1601 0 0 0 0 77 0 58  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 0 1783 152 43 1685 0 0 0 0 81 0 61  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 1783 152 43 1685 0 0 0 0 81 0 61  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 1783 152 43 1685 0 0 0 0 81 0 61

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.92 0.92 0.93 0.93 1.00 1.00 1.00 0.83  
Lanes: 0.00 1.84 0.16 1.00 2.00 0.00 0.00 0.00 1.00  
Final Sat.: 0 3221 274 1769 3538 0 0 0 1769 0 1583

Capacity Analysis Module:  
Vol/Sat: 0.00 0.55 0.55 0.02 0.48 0.00 0.00 0.00 0.00 0.05 0.00 0.04  
Crit Moves: \*\*\*\*\*  
Green/Cycle: 0.46 0.46 0.46 0.12 0.66 0.00 0.00 0.00 0.00 0.22 0.22 0.22  
Volume/Cap: 0.00 1.21 1.21 0.20 0.73 0.00 0.00 0.00 0.00 0.21 0.00 0.17  
Delay/Veh: 0.0 123 123.0 37.6 6.3 0.0 0.0 0.0 0.0 29.7 0.0 29.4  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 123 123.0 37.6 6.3 0.0 0.0 0.0 0.0 29.7 0.0 29.4  
LOS by Move: A F F D A A A A A C A C  
HCM2kAVGQ: 0 53 53 1 11 0 0 0 0 2 0 1

Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

Existing AM

Mon Jan 4, 2010 08:59:13

Page 31-1

19th Ave CS

Existing

Level Of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

Intersection #1270 Lake Merced / Brotherhood

Cycle (sec): 107

Loss Time (sec): 15

Optimal Cycle: 180

Critical Vol./Cap.(X): 1.836

Average Delay (sec/veh): 42.7

Level Of Service: D

Street Name: Lake Merced

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Protected Split Phase Split Phase

Rights: WideBypass Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0

Lanes: 0 0 2 0 1 2 0 1 0 0 0 0 0 0 0 0 1 0 0 0 1

Volume Module:

Base Vol: 0 416 209 1478 225 0 0 0 0 0 139 0 1483

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 0 416 209 1478 225 0 0 0 0 139 0 1483

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95

PHF Volume: 0 438 220 1556 0 0 0 0 0 146 0 1561

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 438 220 1556 0 0 0 0 0 146 0 1561

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 0 438 220 1556 0 0 0 0 0 146 0 1561

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 1.00 0.93 0.83 0.90 1.00 1.00 1.00 1.00 1.00 0.93 1.00 0.83

Lanes: 0.00 2.00 1.00 2.00 1.00 0.00 0.00 0.00 0.00 1.00 0.00 1.00

Final Sat.: 0 3538 1583 3432 1900 0 0 0 0 1769 0 1583

Capacity Analysis Module:

Vol/Sat: 0.00 0.12 0.14 0.45 0.00 0.00 0.00 0.00 0.00 0.08 0.00 0.99

Crit Moves: \*\*\*\*

Green/Cycle: 0.21 0.21 0.21 0.43 0.68 0.68 0.00 0.00 0.00 0.22 0.22 1.00

Volume/Cap: 0.00 0.60 0.68 1.05 0.00 0.00 0.00 0.00 0.00 0.37 0.00 0.99

Delay/Veh: 0.0 42.2 50.0 65.6 0.0 0.0 0.0 0.0 0.0 37.7 0.0 19.6

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 42.2 50.0 65.6 0.0 0.0 0.0 0.0 0.0 37.7 0.0 19.6

LOS by Move: A D D E A A A A A D A B

HCM2kAvgQ: 0 7 8 37 0 0 0 0 0 4 0 13

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Existing Conditions  
Weekday PM Peak Hour



Scenario: Existing PM Scenario Report

Command: Default Command  
 Volume: Existing PM  
 Geometry: Existing PM  
 Impact Fee: Default Impact Fee  
 Trip Generation: No Projects  
 Trip Distribution: PM  
 Paths: Tier 2/3  
 Routes: Tier 2/3  
 Configuration: Existing

Impact Analysis Report  
 Level Of Service

Intersection	Base Del/ LOS Veh C	V/ C	Future Del/ LOS Veh C	Change in
#1010 Claremont / Taraval / Dewey /	B 14.3	0.886	B 14.3	0.886 + 0.000 V/C
#1020 Santa Clara / Portola / Vicent	C 29.4	0.808	C 29.4	0.808 + 0.000 D/V
#1030 Junipero Serra / Sloat / West	F 81.1	1.012	F 81.1	1.012 + 0.000 D/V
#1040 Junipero Serra / Ocean / Euca	C 31.8	0.778	C 31.8	0.778 + 0.000 D/V
#1050 Junipero Serra / Winston / Mer	C 28.4	0.622	C 28.4	0.622 + 0.000 D/V
#1060 Junipero Serra / Holloway	C 28.6	0.639	C 28.6	0.639 + 0.000 D/V
#1070 Junipero Serra / 19th	F 80.9	1.149	F 101.5	1.149 +20.605 D/V
#1075 Junipero Serra / Chumasero	A 2.7	0.708	A 2.7	0.708 + 0.000 D/V
#1080 Junipero Serra / I-280 NB On-R	E 74.0	1.053	E 74.0	1.053 + 0.000 D/V
#1090 Junipero Serra / I-280 SB On-R	C 33.6	0.952	C 33.6	0.952 + 0.000 D/V
#1100 19th / Taraval	B 16.4	0.755	B 16.4	0.755 + 0.000 D/V
#1110 19th / Sloat	F 93.8	1.538	F 93.8	1.538 + 0.000 D/V
#1120 19th / Ocean	F 113.6	1.411	F 117.6	1.405 + 3.966 D/V
#1130 19th / Euca	D 49.9	0.996	D 49.9	0.995 -0.057 D/V
#1140 19th / Winston	F 94.9	1.291	F 94.9	1.291 + 0.000 D/V
#1150 19th / Buckingham	F 211.2	1.311	F 211.2	1.311 + 0.000 D/V
#1160 19th / Holloway	A 9.0	0.748	E 61.2	0.748 +52.218 D/V
#1170 19th / Crespi	B 19.7	0.743	B 19.7	0.743 + 0.000 D/V
#1181 Chumasero / Brotherhood	E 68.1	0.770	E 68.1	0.770 + 0.000 D/V
#1190 Sunset / Taraval	C 20.9	0.747	C 20.9	0.747 + 0.000 D/V
#1200 Sunset / Ocean	B 12.0	0.590	B 12.0	0.590 + 0.000 D/V
#1210 Skyline / Sloat / 39th	C 21.4	0.803	C 21.4	0.803 + 0.000 V/C
#1221 Skyline / Lake Merced (WBR)	B 13.1	0.231	B 13.1	0.231 + 0.000 D/V
#1222 Skyline / Lake Merced (WBLT)	E 42.8	0.463	E 42.8	0.463 + 0.000 D/V

19th Ave CS  
Existing

Intersection	Base Del/ LOS Veh	V/ C	Future Del/ LOS Veh	Change in C
#1230 Sunset / Lake Merced	D 28.2	0.526	D 28.2	0.526 + 0.000 D/V
#1240 Lake Merced / Winston	D 48.2	0.640	E 70.5	0.640 +22.297 D/V
#1250 Lake Merced / Font	C 32.8	0.598	C 33.1	0.598 + 0.314 D/V
#1263 Lake Merced / Higuera	E 59.2	0.726	E 59.2	0.726 + 0.000 D/V
#1270 Lake Merced / Brotherhood	C 30.3	1.677	C 30.2	1.677 -0.018 D/V

19th Ave CS  
Existing

Level Of Service Computation Report FHWA Roundabout Method (Base Volume Alternative)											
Intersection #1010 Claremont / Taraval / Dewey / Kensington											
Average Delay (sec/veh): 14.3 Level Of Service: B											
Street Name: Claremont Taraval / Dewey											
Approach: North Bound South Bound East Bound West Bound											
Movement: L - T - R L - T - R L - T - R L - T - R											
Control: Yield Sign Yield Sign Yield Sign Yield Sign											
Lanes: 1 1 1 1											
Volume Module:											
Base Vol:	17	24	239	50	63	5	10	259	55	324	324
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	17	24	239	50	63	5	10	259	55	324	324
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	18	25	252	53	66	5	11	273	58	341	356
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	18	25	252	53	66	5	11	273	58	341	356
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	18	25	252	53	66	5	11	273	58	341	356
PCE Module:											
AutoPCE:	18	25	252	53	66	5	11	273	58	341	356
TruckPCE:	0	0	0	0	0	0	0	0	0	0	0
ComboPCE:	0	0	0	0	0	0	0	0	0	0	0
BicyclePCE:	0	0	0	0	0	0	0	0	0	0	0
AdjVolume:	18	25	252	53	66	5	11	273	58	341	356
Delay Module: >> Time Period: 0.25 hours <<											
CircVolume:	336			715				460		54	
MaxVolume:	1019			814				952		1171	
PedVolume:	0			0				0		0	
AdjMaxVol:	1019			814				952		1171	
ApproachVol:	295			124				341		1038	
ApproachV/C:	0.29			0.15				0.36		0.89	
ApproachDel:	5.0			5.2				5.9		20.9	
ApproachLOS:	A			A				A		C	
Queue:	1.2			0.5				1.6		13.1	





19th Ave CS  
Existing

Level Of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)  
\*\*\*\*\*  
Intersection #1040 Junipero Serra / Ocean / Eucalyptus  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.778  
Loss Time (sec): 14 Average Delay (sec/veh): 31.8  
Optimal Cycle: 100 Level Of Service: C  
\*\*\*\*\*

Street Name: Junipero Serra Ocean / Eucalyptus  
Approach: North Bound South Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Protected Protected Permitted Permitted  
Rights: Include Include Ovl Ovl  
Min. Green: 11 43 43 16 48 48 27 27 27 27 27 27  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 1 0 2 1 0 2 0 2 1 0 1 0 1 0 0 1

Volume Module:  
Base Vol: 176 1567 35 356 1065 96 140 356 58 77 332 333  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 176 1567 35 356 1065 96 140 356 58 77 332 333  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 185 1649 37 375 1121 101 147 375 61 81 349 351  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 185 1649 37 375 1121 101 147 375 61 81 349 351  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 185 1649 37 375 1121 101 147 375 61 81 349 351

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.92 0.97 0.88 0.90 0.88 0.88 0.60 0.60 0.83 0.89 0.89 0.83  
Lanes: 1.00 2.93 0.07 2.00 2.75 0.25 0.56 1.44 1.00 0.19 0.81 1.00  
Final Sat.: 1751 5387 120 3432 4607 415 648 1648 1583 320 1378 1583

Capacity Analysis Module:  
Vol/Sat: 0.11 0.31 0.31 0.11 0.24 0.24 0.23 0.23 0.04 0.25 0.25 0.22  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.11 0.43 0.43 0.16 0.48 0.48 0.27 0.27 0.38 0.27 0.27 0.43  
Volume/Cap: 0.96 0.71 0.71 0.68 0.51 0.51 0.84 0.84 0.10 0.94 0.94 0.52  
Delay/Veh: 99.9 22.0 22.0 46.3 15.0 15.0 47.5 47.5 20.3 64.9 64.9 23.6  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 99.9 22.0 22.0 46.3 15.0 15.0 47.5 47.5 20.3 64.9 64.9 23.6  
LOS by Move: F C C D B D C D C E E C  
HCM2KavgQ: 7 14 12 5 7 7 11 11 1 17 17 8  
\*\*\*\*\*  
Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

19th Ave CS  
Existing

Level Of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)  
\*\*\*\*\*  
Intersection #1050 Junipero Serra / Winston / Mercedes  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.622  
Loss Time (sec): 14 Average Delay (sec/veh): 28.4  
Optimal Cycle: 100 Level Of Service: C  
\*\*\*\*\*

Street Name: Junipero Serra Winston / Mercedes  
Approach: North Bound South Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Protected Protected Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 19 40 40 19 40 40 27 27 27 27 27 27  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 0 1 0 1

Volume Module:  
Base Vol: 224 1516 52 85 1130 117 169 152 81 74 103 36  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 224 1516 52 85 1130 117 169 152 81 74 103 36  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 236 1596 55 89 1189 123 178 160 85 78 108 38  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 236 1596 55 89 1189 123 178 160 85 78 108 38  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 236 1596 55 89 1189 123 178 160 85 78 108 38

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.93 0.89 0.89 0.93 0.88 0.88 0.67 0.98 0.83 0.58 0.98 0.83  
Lanes: 1.00 2.90 0.10 1.00 2.72 0.28 1.00 1.00 1.00 1.00 1.00 1.00  
Final Sat.: 1769 4890 168 1769 4542 470 1274 1862 1583 1099 1862 1583

Capacity Analysis Module:  
Vol/Sat: 0.13 0.33 0.33 0.05 0.26 0.26 0.14 0.09 0.05 0.07 0.06 0.02  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.19 0.40 0.40 0.19 0.40 0.40 0.27 0.27 0.27 0.27 0.27 0.27  
Volume/Cap: 0.70 0.82 0.82 0.27 0.65 0.65 0.52 0.32 0.20 0.26 0.22 0.09  
Delay/Veh: 49.4 27.7 27.7 36.5 23.5 23.5 36.4 30.8 29.2 30.8 29.3 27.7  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 49.4 27.7 27.7 36.5 23.5 23.5 36.4 30.8 29.2 30.8 29.3 27.7  
LOS by Move: D C C D C D C D C C C C  
HCM2KavgQ: 7 16 16 2 11 11 4 4 2 3 2 3  
\*\*\*\*\*  
Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*



19th Ave CS  
Existing

Level of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)  
Intersection #1080 Junipero Serra / I-280 NB On-Ramp / John Daly  
Cycle (sec): 125 Critical Vol./Cap.(X): 1.053  
Loss Time (sec): 12 Average Delay (sec/veh): 74.0  
Optimal Cycle: 180 Level Of Service: E

Street Name:Junipero Serra / I-280 NB On-Ramp John Daly  
Approach: North Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R  
Control: Split Phase Split Phase Split Phase  
Rights: Ovl Include Ovl  
Min. Green: 6 6 6 31 31 31 6 6 6  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 2 0 1 1 1 0 0 1 2 1 0 1 1 2 0 1

Volume Module:  
Base Vol: 621 381 328 210 383 857 667 495 160 122 895 232  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 621 381 328 210 383 857 667 495 160 122 895 232  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 654 401 345 221 403 902 702 521 168 128 942 244  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 654 401 345 221 403 902 702 521 168 128 942 244  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 654 401 345 221 403 902 702 521 168 128 942 244

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.90 0.87 0.87 0.93 0.88 0.88 0.86 0.89 0.89 0.89 0.89 0.83  
Lanes: 2.00 1.61 1.39 1.00 0.62 1.38 2.33 1.67 1.00 1.00 3.00 1.00  
Final Sat.: 3432 2655 2286 1769 1031 2306 3821 2836 1694 1684 5053 1583

Capacity Analysis Module:  
Vol/Sat: 0.19 0.15 0.15 0.12 0.39 0.39 0.18 0.18 0.10 0.08 0.19 0.15  
Crit Moves: \*\*\*  
Green/Cycle: 0.16 0.16 0.32 0.33 0.33 0.58 0.25 0.25 0.25 0.16 0.16 0.49  
Volume/Cap: 1.17 0.93 0.47 0.37 1.17 0.67 0.74 0.74 0.40 0.48 1.17 0.31  
Delay/Veh: 147.2 68.5 34.1 32.1 128 18.9 44.9 44.9 39.3 48.0 141 19.2  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 147.2 68.5 34.1 32.1 128 18.9 44.9 44.9 39.3 48.0 141 19.2  
LOS by Move: F E C C F B D D D F B  
HCM2kAVQ: 22 14 8 6 39 18 11 11 5 5 22 6  
Note: Queue reported is the number of cars per lane.

19th Ave CS  
Existing

Level of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)  
Intersection #1090 Junipero Serra / I-280 SB On-Ramp / John Daly  
Cycle (sec): 120 Critical Vol./Cap.(X): 0.952  
Loss Time (sec): 8 Average Delay (sec/veh): 33.6  
Optimal Cycle: 154 Level Of Service: C

Street Name:Junipero Serra / I-280 SB On-Ramp John Daly  
Approach: North Bound South Bound West Bound  
Movement: L - T - R L - T - R L - T - R  
Control: Split Phase Split Phase Split Phase  
Rights: Ovl Include Ovl  
Min. Green: 0 0 0 4.0 4.0 4.0 4.0 4.0 4.0  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 0 2 0 0 0 0 0 2 1 0 2 0 0

Volume Module:  
Base Vol: 0 0 350 0 0 0 0 0 972 427 722 1966 0  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 0 0 350 0 0 0 0 0 972 427 722 1966 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 0 0 368 0 0 0 0 0 1023 449 760 2069 0  
Reduc Vol: 0 0 368 0 0 0 0 0 1023 449 760 2069 0  
Reduced Vol: 0 0 368 0 0 0 0 0 1023 449 760 2069 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 0 368 0 0 0 0 0 1023 449 760 2069 0

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 1.00 0.73 1.00 1.00 1.00 1.00 0.85 0.85 0.90 0.93 1.00  
Lanes: 0.00 0.00 2.00 0.00 0.00 0.00 0.00 2.08 0.92 2.00 2.00 0.00  
Final Sat.: 0 0 2786 0 0 0 0 3369 1480 3432 3538 0

Capacity Analysis Module:  
Vol/Sat: 0.00 0.00 0.13 0.00 0.00 0.00 0.00 0.30 0.30 0.22 0.58 0.00  
Crit Moves: \*\*\*  
Green/Cycle: 0.00 0.00 0.61 0.00 0.00 0.00 0.00 0.32 0.32 0.61 0.61 0.00  
Volume/Cap: 0.00 0.00 0.22 0.00 0.00 0.00 0.00 0.95 0.95 0.36 0.95 0.00  
Delay/Veh: 0.0 0.0 10.3 0.0 0.0 0.0 0.0 53.2 53.2 11.6 31.8 0.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 0.0 10.3 0.0 0.0 0.0 0.0 53.2 53.2 11.6 31.8 0.0  
LOS by Move: A A B A A A A D B C A  
HCM2kAVQ: 0 0 3 0 0 0 0 24 24 7 35 0  
Note: Queue reported is the number of cars per lane.



```

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)
*****
Intersection #1100 19th / Taraval

```

Cycle (sec):	100	Critical Vol./Cap.(X):	0.755
Loss Time (sec):	10	Average Delay (sec/veh):	16.4
optimal Cycle:	99	Level Of Service:	B

Street Name: Approach: Movement:	19th				Taraval			
	North Bound		South Bound		East Bound		West Bound	
	L	T - R	L	T - R	L	T - R	L	T - R
Control:	Permitted		Permitted		Permitted		Permitted	
Rights:	Include		Include		Include		Include	
Min. Green:	66	66	66	66	23	23	23	23
Y.R.:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	2	1	0	1	0	1

Volume Module:												
Base Vol:	0	2131	104	0	2591	31	3	334	84	0	358	51
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	2131	104	0	2591	31	3	334	84	0	358	51
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	2243	109	0	2727	33	3	352	88	0	377	54
Reduce Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	2243	109	0	2727	33	3	352	88	0	377	54
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	2243	109	0	2727	33	3	352	88	0	377	54

[illegible]

Capacity Analysis Module:										
Vol/Sat:	0.00	0.47	0.47	0.00	0.54	0.54	0.14	0.14	0.14	0.12
Exit Moves:										
Green/Cycle:	0.00	0.67	0.67	0.00	0.67	0.67	0.23	0.23	0.23	0.23
Volume/Cap:	0.00	0.70	0.70	0.00	0.81	0.81	0.59	0.59	0.59	0.54
Delay/Veh:	0.0	11.4	11.4	0.0	14.2	14.2	37.7	37.7	37.7	36.5
User Del/dAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	11.4	11.4	0.0	14.2	14.2	37.7	37.7	37.7	36.5
LOS by Move:										
A	B	B	B	A	B	B	D	D	A	D
0	17	17	0	24	24	7	7	7	0	7
HCM2kAvg0:										
*****										

Note: Queue reported is the number of cars per lane.

```

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)
*****
Intersection #1110 19th / Sloat
*****

```

Cycle (sec):	100	Critical Vol./Cap. (X):	1.538
Loss Time (sec):	9	Average Delay (sec/veh):	93.8
optimal cycle:	180	Level Of Service:	F

Street Name:	19th						Sloat						
	North Bound			South Bound			East Bound			West Bound			
Approach:	L	T	R	L	T	R	L	T	R	L	T	R	
Movement:													
Control:	Permitted			Protected			Permit+Prot			Permitted			
Rights:	Include			Include			Include			Include			
Min. Green:	0	43	43	11	58	58	4	33	33	24	24	24	
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lanes:	0	0	2	1	0	2	1	0	2	1	0	0	3

Volume Module:												
Base Vol:	0	2446	66	235	2609	321	185	1440	74	0	870	497
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Use:	0	2446	66	235	2609	321	185	1440	74	0	870	497
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	2575	69	247	2746	338	195	1516	78	0	916	523
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	2575	69	247	2746	338	195	1516	78	0	916	523
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	2575	69	247	2746	338	195	1516	78	0	916	523

[illegible]

Capacity Analysis Module:												
Vol/Sat:	0.00	0.52	0.52	0.14	0.62	0.62	0.32	0.32	0.32	0.00	0.18	0.41
****												
Crit Moves:	0.00	0.43	0.43	0.11	0.54	0.54	0.37	0.37	0.37	0.00	0.29	0.29
Green/Cycle:	0.00	1.21	1.21	1.27	1.14	1.14	0.76	0.86	0.86	0.00	0.63	1.42
Volume/Cap:	0.0	126	125.6	200.5	85.6	85.6	42.1	33.9	33.9	0	33.0	238.4
Delay/Veh:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
User delAdj:	0.0	126	125.6	200.5	85.6	85.6	42.1	33.9	33.9	0	33.0	238.4
AdpJel/Veh:	0.0	126	125.6	200.5	85.6	85.6	42.1	33.9	33.9	0	33.0	238.4
*****												
LOS by Move:	A	F	F	F	F	F	D	C	C	A	C	F
HCN2kAvgQ:	0	49	49	17	55	55	8	19	19	0	10	37
*****												

Note: Queue reported is the number of cars per lane.

19th Ave CS  
ExistingLevel of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)\*\*\*\*\*  
Intersection #1120 19th / OceanCycle (sec): 100 Critical Vol./Cap.(X): 1.411  
Loss Time (sec): 9 Average Delay (sec/veh): 113.6  
Optimal Cycle: 180 Level Of Service: F

\*\*\*\*\*

Street Name: 19th Ocean

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Include Permitted Include Permitted Include  
Rights: 64 64 64 64 64 64 64 64 64 64 64 64  
Min. Green: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Y+R: 0 0 2 1 0 0 0 2 1 0 1 0 0 0 1 0 0 0  
Lanes: 0 0 2 1 0 0 0 2 1 0 1 0 0 0 1 0 0 0

Volume Module:

Base Vol: 0 2340 47 0 2579 164 64 293 25 25 271 127  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 0 2340 47 0 2579 164 64 293 25 25 271 127  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 0 2463 49 0 2715 173 67 308 26 26 285 134  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2463 49 0 2715 173 67 308 26 26 285 134  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2463 49 0 2715 173 67 308 26 26 285 134

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.44 0.89 1.00 0.88 0.88 0.87 0.97 0.97 0.78 0.78 0.78  
Lanes: 0.00 2.97 0.03 0.00 2.82 0.18 1.00 0.92 0.08 0.06 0.64 0.30  
Final Sat.: 0 2509 50 0 4736 301 1644 1695 145 87 944 442

Capacity Analysis Module:

Vol/Sat: 0.00 0.98 0.98 0.00 0.57 0.57 0.04 0.18 0.18 0.30 0.30 0.30  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.65 0.65 0.00 0.65 0.65 0.26 0.26 0.26 0.26 0.26 0.26  
Volume/Cap: 0.00 1.51 1.51 0.00 0.88 0.88 0.16 0.70 0.70 1.16 1.16 1.16  
Delay/Veh: 0.0 241 240.5 0.0 10.1 10.1 29.3 41.7 41.7 135.2 135 135.2  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 241 240.5 0.0 10.1 10.1 29.3 41.7 41.7 135.2 135 135.2  
LOS by Move: A F F A B B C D D F F F F  
HCM2kAVGQ: 0 64 128 0 18 18 2 10 10 25 25 25

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

19th Ave CS  
ExistingLevel of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)\*\*\*\*\*  
Intersection #1130 19th / EucalyptusCycle (sec): 100 Critical Vol./Cap.(X): 0.996  
Loss Time (sec): 9 Average Delay (sec/veh): 49.9  
Optimal Cycle: 180 Level Of Service: D

\*\*\*\*\*

Street Name: 19th Eucalyptus

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Include Permitted Include Permitted Include  
Rights: 66 66 66 66 66 66 66 66 66 66 66 66  
Min. Green: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Y+R: 0 0 2 1 0 0 0 2 1 0 1 0 1 0 1 0 0 0  
Lanes: 0 0 2 1 0 0 0 2 1 0 1 0 1 0 1 0 0 0

Volume Module:

Base Vol: 0 2277 26 0 2555 114 170 169 54 9 167 17  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 0 2277 26 0 2555 114 170 169 54 9 167 17  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 0 2397 27 0 2689 120 179 178 57 9 176 18  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2397 27 0 2689 120 179 178 57 9 176 18  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2397 27 0 2689 120 179 178 57 9 176 18

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.53 0.89 1.00 0.89 0.89 0.64 0.64 0.64 0.95 0.95  
Lanes: 0.00 2.98 0.02 0.00 2.87 0.13 1.30 1.29 0.41 0.05 0.86 0.09  
Final Sat.: 0 3023 35 0 4837 216 1582 1573 503 84 1563 159

Capacity Analysis Module:

Vol/Sat: 0.00 0.79 0.79 0.00 0.56 0.56 0.11 0.11 0.11 0.11 0.11  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.66 0.66 0.00 0.66 0.66 0.25 0.25 0.25 0.25 0.25  
Volume/Cap: 0.00 1.20 1.20 0.00 0.84 0.84 0.45 0.45 0.45 0.45 0.45  
Delay/Veh: 0.0 103 102.5 0.0 8.1 8.1 33.3 33.3 33.3 34.9 34.9  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 103 102.5 0.0 8.1 8.1 33.3 33.3 33.3 34.9 34.9  
LOS by Move: A F F A A A C C C C C  
HCM2kAVGQ: 0 48 77 0 16 16 4 4 4 6 6

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*





19th Ave CS  
Existing

## Level of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

Intersection #1160 19th / Holloway

Cycle (sec): 100 Critical Vol./Cap.(X): 0.748  
Loss Time (sec): 0 Average Delay (sec/veh): 9.0  
Optimal Cycle: 91 Level Of Service: AStreet Name: 19th Holloway  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 0 59 59 0 59 59 32 32 32 32  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 0 3 0 1 0 1 0 1 0 1 0

## Volume Module:

Base Vol: 0 2489 143 0 3047 145 88 167 88 45 296 41  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 0 2489 143 0 3047 145 88 167 88 45 296 41  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 0 2620 151 0 3207 153 93 176 93 47 312 43  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2620 151 0 3207 153 93 176 93 47 312 43  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2620 151 0 3207 153 93 176 93 47 312 43

## Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.88 1.00 0.94 0.76 0.64 0.66 0.63 0.79 0.80 0.79  
Lanes: 0.00 2.83 0.17 0.00 3.00 1.00 0.52 0.95 0.53 0.24 1.54 0.22  
Final Sat.: 0 4992 287 0 5337 1443 629 1194 629 358 2357 327

## Capacity Analysis Module:

Vol/Sat: 0.00 0.52 0.52 0.00 0.60 0.11 0.15 0.15 0.15 0.13 0.13 0.13  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.68 0.68 0.00 0.68 0.68 0.32 0.32 0.32 0.32 0.32  
Volume/Cap: 0.00 0.77 0.77 0.00 0.88 0.16 0.46 0.46 0.46 0.41 0.41  
Delay/Veh: 0.0 5.3 5.3 0.0 7.8 2.3 29.1 29.1 29.1 27.9 27.9  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 5.3 5.3 0.0 7.8 2.3 29.1 29.1 29.1 27.9 27.9  
LOS by Move: A A A A A A C C C C C C  
HCM2kAVGQ: 0 11 10 0 20 1 5 5 5 5 5

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Existing

## Level of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

Intersection #1170 19th / Crespi

Cycle (sec): 100 Critical Vol./Cap.(X): 0.743  
Loss Time (sec): 10 Average Delay (sec/veh): 19.7  
Optimal Cycle: 95 Level Of Service: BStreet Name: 19th Crespi  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Ignore Ignore  
Min. Green: 59 59 0 0 64 64 21 0 21 0  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 3 0 0 0 0 2 1 0 1 0 1 0 0 0 0

## Volume Module:

Base Vol: 0 2485 0 0 3081 99 147 0 97 0 0  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 0 2485 0 0 3081 99 147 0 97 0 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 0 2616 0 0 3243 0 155 0 0 0 0  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2616 0 0 3243 0 155 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2616 0 0 3243 0 155 0 0 0 0

## Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 1.00 1.00 0.89 0.91 0.89 0.95 0.95 1.00 1.00  
Lanes: 0.00 3.00 0.00 0.00 3.00 0.00 3.00 0.00 0.00 0.00 0.00  
Final Sat.: 0 5083 0 0 5083 0 5052 0 0 0 0

## Capacity Analysis Module:

Vol/Sat: 0.00 0.51 0.00 0.00 0.64 0.00 0.03 0.00 0.00 0.00 0.00  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.59 0.59 0.59 0.64 0.64 0.64 0.21 0.21 0.21 0.00 0.00  
Volume/Cap: 0.00 0.87 0.00 0.00 1.00 0.00 0.15 0.00 0.00 0.00 0.00  
Delay/Veh: 0.0 14.2 0.0 0.0 23.5 0.0 32.5 0.0 0.0 0.0 0.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 14.2 0.0 0.0 23.5 0.0 32.5 0.0 0.0 0.0 0.0  
LOS by Move: A B A A A C A C A A A A  
HCM2kAVGQ: 0 23 0 0 41 0 1 0 0 0 0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)  
\*\*\*\*\*  
Intersection #1181 Chumaseo / Brotherhood  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.770  
Loss Time (sec): 12 Average Delay (sec/veh): 68.1  
Optimal Cycle: 100 Level Of Service: E  
\*\*\*\*\*

Street Name: Chumaseo Brotherhood  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Protected Protected  
Rights: Include Include Include Include  
Min. Green: 20 20 20 20 20 20 20 20 48 48 48 48  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 1 0 0 0 0 1 0 0 1 0 1 0 1 0

Volume Module:  
Base Vol: 12 5 32 75 4 12 39 1460 11 33 1613 236  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 12 5 32 75 4 12 39 1460 11 33 1613 236  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 13 5 34 79 4 13 41 1537 12 35 1698 248  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 13 5 34 79 4 13 41 1537 12 35 1698 248  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 13 5 34 79 4 13 41 1537 12 35 1698 248

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.67 0.67 0.84 0.54 0.54 0.93 0.93 0.93 0.93 0.93 0.91 0.91  
Lanes: 0.28 0.12 0.60 0.83 0.04 0.13 1.00 1.99 0.01 1.00 1.74 0.26  
Final Sat.: 361 150 963 846 45 135 1769 3508 26 1769 3028 443  
Capacity Analysis Module:  
Vol/Sat: 0.03 0.03 0.03 0.09 0.09 0.02 0.44 0.44 0.02 0.56 0.56  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.20 0.20 0.20 0.20 0.20 0.48 0.48 0.48 0.20 0.48 0.48  
Volume/Cap: 0.17 0.17 0.17 0.47 0.47 0.12 0.91 0.91 0.10 0.17 0.17  
Delay/Veh: 34.5 34.5 34.5 42.7 42.7 33.4 28.2 28.2 33.2 103 103  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 34.5 34.5 34.5 42.7 42.7 33.4 28.2 28.2 33.2 103 103  
LOS by Move: C C C D D D C C C C C F F  
HCM2kavq: 1 1 2 3 3 3 1 26 26 1 53 53  
Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

Level Of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)  
\*\*\*\*\*  
Intersection #1190 Sunset / Taraval  
\*\*\*\*\*  
Cycle (sec): 60 Critical Vol./Cap.(X): 0.747  
Loss Time (sec): 10 Average Delay (sec/veh): 20.9  
Optimal Cycle: 60 Level Of Service: C  
\*\*\*\*\*

Street Name: Sunset Taraval  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 29 29 29 29 29 29 21 21 21 21 21 21  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 0 2 1 0 1 0 1 0 1 0

Volume Module:  
Base Vol: 0 2129 96 0 1790 117 70 238 37 76 243 30  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 0 2129 96 0 1790 117 70 238 37 76 243 30  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 0 2241 101 0 1884 123 74 251 39 80 256 32  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2241 101 0 1884 123 74 251 39 80 256 32  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2241 101 0 1884 123 74 251 39 80 256 32

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 1.00 0.88 0.88 0.50 0.96 0.96 0.50 0.96 0.96  
Lanes: 0.00 2.87 0.13 0.00 2.82 0.18 1.00 0.87 0.13 1.00 0.89 0.11  
Final Sat.: 0 4835 218 0 4728 309 953 1579 246 948 1631 201  
Capacity Analysis Module:  
Vol/Sat: 0.00 0.46 0.46 0.00 0.40 0.40 0.08 0.16 0.16 0.08 0.16 0.16  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.48 0.48 0.00 0.48 0.48 0.35 0.35 0.35 0.35 0.35 0.35  
Volume/Cap: 0.00 0.96 0.96 0.00 0.82 0.82 0.22 0.45 0.45 0.24 0.45 0.45  
Delay/Veh: 0.0 25.8 25.8 0.0 16.6 16.6 15.3 17.4 17.4 15.6 17.3 17.3  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 25.8 25.8 0.0 16.6 16.6 15.3 17.4 17.4 15.6 17.3 17.3  
LOS by Move: A C C A B B B B B B B B  
HCM2kavq: 0 22 22 0 14 14 1 5 5 1 4 4  
Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

19th Ave CS  
Tier 2

## Scenario Report

Tier 2 AM

Command: Default Command  
Volume: Tier 2 AM  
Geometry: Existing AM  
Impact Fee: Default Impact Fee  
Trip Generation: Projects AM  
Trip Distribution: AM  
Paths: Tier 2/3  
Routes: Tier 2/3  
Configuration: Existing

19th Ave CS  
Tier 2Impact Analysis Report  
Level Of Service

## Intersection

	Base		Future		Change
	Del/	V/	Del/	V/	in
	LOS	Veh	LOS	Veh	
	A	C	A	C	
#1010 Claremont / Taraval / Dewey	6.8	0.650	7.0	0.665	+ 0.015 V/C
#1020 Santa Clara / Portola / Vicent	29.7	0.837	40.2	0.960	+10.494 D/V
#1030 Junipero Serra / Sloat / West	90.5	1.076	96.9	1.094	+ 6.429 D/V
#1040 Junipero Serra / Ocean / Euca	40.4	0.758	46.9	0.802	+ 6.482 D/V
#1050 Junipero Serra / Winston / Mer	34.6	0.632	38.3	0.772	+ 3.680 D/V
#1060 Junipero Serra / Holloway	32.7	0.675	36.9	0.716	+ 4.265 D/V
#1070 Junipero Serra / 19th	91.7	0.942	108.3	0.968	+16.664 D/V
#1075 Junipero Serra / Chumase	2.3	0.715	10.3	0.862	+ 8.047 D/V
#1080 Junipero Serra / I-280 NB On-R	40.2	0.788	40.5	0.800	+ 0.271 D/V
#1090 Junipero Serra / I-280 SB On-R	20.4	0.568	20.4	0.620	-0.007 D/V
#1100 19th / Taraval	25.5	0.815	28.9	0.829	+ 3.420 D/V
#1110 19th / Sloat	107.3	1.464	119.3	1.508	+11.977 D/V
#1120 19th / Ocean	41.4	1.084	46.1	1.093	+ 4.780 D/V
#1130 19th / Eucalyptus	21.0	0.831	23.1	0.865	+ 2.060 D/V
#1140 19th / Winston	50.0	0.977	84.1	1.322	+34.127 D/V
#1150 19th / Buckingham	57.6	0.679	77.7	0.826	+20.071 D/V
#1160 19th / Holloway	61.9	0.850	59.7	0.930	-2.282 D/V
#1170 19th / Crespi	54.5	0.762	64.8	0.752	+10.238 D/V
#1181 Chumase	95.4	0.961	241.8	1.481	+146.420 D/
#1190 Sunset / Taraval	21.0	0.717	43.0	0.799	+21.964 D/V
#1200 Sunset / Ocean	12.0	0.605	13.7	0.664	+ 1.687 D/V
#1210 Skyline / Sloat / 39th	17.0	0.684	17.5	0.692	+ 0.009 V/C
#1221 Skyline / Lake Merced (WBR)	15.1	0.209	15.1	0.209	+ 0.010 D/V
#1222 Skyline / Lake Merced (WBLT)	52.5	0.379	52.8	0.381	+ 0.284 D/V



Intersection	Base		Future		Change
	Del/	V/	Del/	V/	
	LOS	Veh C	LOS	Veh C	in
#1230 Sunset / Lake Merced	F 154.0	0.594	F 425.0	1.103	+270.952 D/
#1240 Lake Merced / Winston	C 28.8	0.691	F 96.8	0.805	+68.066 D/V
#1250 Lake Merced / Font	E 61.6	0.746	F 171.6	1.471	+109.946 D/
#1263 Lake Merced / Higuera	F 95.7	0.778	F 140.7	1.202	+45.089 D/V
#1270 Lake Merced / Brotherhood	F 96.3	2.103	F 140.2	2.246	+43.892 D/V

Level Of Service Computation Report											
FHWA Roundabout Method (Future Volume Alternative)											
Intersection #1010 Claremont / Taraval / Dewey / Kensington											
Average Delay (sec/veh): 7.0 Level Of Service: A											
Street Name: Claremont											
Approach: North Bound South Bound Taraval / Dewey West Bound											
Movement: L - T - R L - T - R L - T - R L - T - R											
Control: Yield Sign Yield Sign Yield Sign Yield Sign											
Lanes: 1 1 1 1											
Volume Module:											
Base Vol:	3	7	221	10	60	37	1	231	27	313	337
Growth Adj:	1.03	1.02	1.02	1.02	1.02	1.03	1.02	1.01	1.02	1.03	1.04
Initial Bse:	3	7	224	10	61	38	1	233	27	323	351
Added Vol:	1	0	5	0	0	0	0	0	0	17	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	4	7	229	10	61	38	1	233	27	340	351
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	4	7	234	10	63	39	1	238	28	347	358
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	4	7	234	10	63	39	1	238	28	347	358
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	4	7	234	10	63	39	1	238	28	347	358
PCE Module:											
AutoPCE:	4	7	234	10	63	39	1	238	28	347	358
TruckPCE:	0	0	0	0	0	0	0	0	0	0	0
ComboPCE:	0	0	0	0	0	0	0	0	0	0	0
BicyclePCE:	0	0	0	0	0	0	0	0	0	0	0
AdjVolume:	4	7	234	10	63	39	1	238	28	347	358
Delay Module: >> Time Period: 0.25 hours <<											
CircVolume:	250		709					420		13	
MaxVolume:	1065		817					973		1193	
PedVolume:	0		0					0		0	
AdjMaxVol:	1065		817					973		1193	
ApproachVol:	246		112					267		793	
ApproachV/C:	0.23		0.14					0.27		0.66	
ApproachDel:	4.4		5.1					5.1		8.8	
ApproachLOS:	A		A					A		A	
Queue:	0.9		0.5					1.1		5.4	

19th Ave CS

Tier 2

## Level of Service Computation Report

## 2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #1020 Santa Clara / Portola / Vicente  
\*\*\*\*\*Cycle (sec): 80 Critical Vol./Cap.(X): 0.960  
Loss Time (sec): 11 Average Delay (sec/veh): 40.2  
Optimal Cycle: 124 Level of Service: D  
\*\*\*\*\*Street Name: Santa Clara / Vicente Portola  
Approach: North Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - RControl: Permitted Include Protected Include Protected Include  
Rights: 23 23 23 23 23 23 9 36 36 9 36 36  
Min. Green: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Y+R: 0 0 1 0 0 0 1 0 1 0 1 0 1 0 1 0  
Lanes: 0 0 1 0 0 0 0 1 0 0 0 1 0 1 0 1 0

## Volume Module:

Base Vol: 18 264 86 82 202 30 24 1057 17 120 859 81  
Growth Adj: 1.05 1.04 1.09 1.12 1.10 1.08 1.09 1.13 1.12 1.08 1.05 1.05  
Initial Bse: 19 276 94 92 223 32 26 1197 19 129 903 85  
Added Vol: 0 0 0 26 0 4 0 131 0 0 79 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 19 276 94 118 223 36 26 1328 19 129 982 85  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 19 281 96 120 227 37 27 1355 19 132 1002 87  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 19 281 96 120 227 37 27 1355 19 132 1002 87  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Final Volume: 19 281 96 120 227 37 27 1355 19 132 1002 87

## Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.92 0.92 0.92 0.56 0.56 0.56 0.93 0.93 0.93 0.93 0.92 0.92  
Lanes: 0.05 0.71 0.24 0.31 0.59 0.10 1.00 1.00 1.00 1.00 1.84 0.16  
Final Sat.: 85 1248 424 330 625 102 1769 3481 50 1769 3217 278

## Capacity Analysis Module:

Vol/Sat: 0.23 0.23 0.23 0.36 0.36 0.36 0.02 0.39 0.39 0.07 0.31 0.31  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.30 0.30 0.30 0.30 0.30 0.30 0.11 0.45 0.45 0.11 0.45 0.45  
Volume/Cap: 0.75 0.75 0.75 1.21 1.21 1.21 0.13 0.87 0.87 0.66 0.69 0.69  
Delay/Veh: 34.8 34.8 34.8 149.4 149 149.4 33.4 26.4 26.4 50.1 20.1 20.1  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 34.8 34.8 34.8 149.4 149 149.4 33.4 26.4 26.4 50.1 20.1 20.1  
LOS by Move: C C C F F F C C C D C C  
HCM2kVgQ: 11 11 11 21 21 21 1 19 19 4 12 12  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

19th Ave CS

Tier 2

## Level of Service Computation Report

## 2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #1030 Junipero Serra / Sloat / West Portal / St. Francis  
\*\*\*\*\*Cycle (sec): 105 Critical Vol./Cap.(X): 1.094  
Loss Time (sec): 16 Average Delay (sec/veh): 96.9  
Optimal Cycle: 180 Level of Service: F  
\*\*\*\*\*Street Name: Junipero Serra / West Portal Sloat / St. Francis  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - RControl: Protected Include Permitted Include Permitted Include  
Rights: 16 48 48 27 27 27 20 20 20 20 20 20  
Min. Green: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Y+R: 3 0 1 1 0 0 0 2 1 0 3 0 1 0 1 0 1 0  
Lanes: 3 0 1 1 0 0 0 2 1 0 3 0 1 0 1 0 1 0

## Volume Module:

Base Vol: 972 1137 20 0 1092 176 646 416 322 23 347 8  
Growth Adj: 1.16 1.14 1.16 1.14 1.09 1.14 1.16 1.19 1.14 1.14 1.19 1.16  
Initial Bse: 1129 1292 23 0 1192 200 750 494 367 26 412 9  
Added Vol: 22 110 0 0 53 0 2 0 7 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 1151 1402 23 0 1245 200 752 494 374 26 412 9  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 1174 1431 24 0 1271 205 768 504 0 27 420 9  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 1174 1431 24 0 1271 205 768 504 0 27 420 9  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Final Volume: 1174 1431 24 0 1271 205 768 504 0 27 420 9

## Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.89 0.92 0.92 1.00 0.88 0.88 0.89 0.97 1.00 0.93 0.93 0.93  
Lanes: 3.00 1.97 0.03 0.00 2.58 0.42 3.00 1.00 1.00 0.12 1.84 0.04  
Final Sat.: 5096 3438 57 0 4329 697 5096 1843 1900 206 3237 73

## Capacity Analysis Module:

Vol/Sat: 0.23 0.42 0.42 0.00 0.29 0.29 0.15 0.27 0.00 0.13 0.13 0.13  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.18 0.44 0.44 0.00 0.26 0.26 0.22 0.22 0.00 0.19 0.19 0.19  
Volume/Cap: 1.26 0.95 0.95 0.00 1.14 1.14 0.69 1.26 0.00 0.68 0.68 0.68  
Delay/Veh: 168.3 41.4 41.4 0.0 113 112.5 41.5 177 0.0 45.1 45.1 45.1  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 168.3 41.4 41.4 0.0 113 112.5 41.5 177 0.0 45.1 45.1 45.1  
LOS by Move: F D A F D F A D F A D D  
HCM2kVgQ: 23 23 23 0 29 29 9 31 0 8 8 8  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

Tier 2 AM		Mon Jan 4, 2010 09:14:48										Page 6-1	
-----													
19th Ave CS													
Tier 2													
-----													
Level Of Service Computation Report													
2000 HCM Operations Method (Future Volume Alternative)													
*****													
Intersection #1040 Junipero Serra / Ocean / Eucalyptus													
*****													
Cycle (sec):	100	Critical Vol./Cap.(X):										0.802	
Loss time (sec):	14	Average Delay (sec/veh):										46.9	
Optimal Cycle:	100	Level Of Service:										D	
*****													
Street Name:	Junipero Serra Ocean / Eucalyptus												
Approach:	North Bound South Bound East Bound West Bound												
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Protected	Protected	Protected	Protected	Protected	Protected	Protected	Protected	Protected	Protected	Protected	Protected	Protected
Rights:	Include	Include	Include	Include	Include	Include	Include	Include	Include	Include	Include	Include	Include
Min. Green:	11 43	43	16 48	48	27 27	27 27	27 27	27 27	27 27	27 27	27 27	27 27	27 27
Y+R:	4.0 4.0	4.0	4.0 4.0	4.0	4.0 4.0	4.0	4.0 4.0	4.0	4.0 4.0	4.0	4.0 4.0	4.0	4.0
Lanes:	1 0 2 1	0	2 0 2 1	0	0 1 1 0	1	0 1 0 1	0	1 0 1 0	1	0 1 0 1	0	1
-----													
Volume Module:													
Base Vol:	189 1678	46	326 1061	90	85 384	45	54 368	324					
Growth Adj:	1.16 1.14	1.16	1.14 1.09	1.14	1.16 1.19	1.14	1.14 1.19	1.16					
Initial Bse:	220 1907	53	371 1159	103	99 456	51	62 437	376					
Added Vol:	0 107	4	14 42	4	2 16	0	1 33	23					
PasserByVol:	0 0	0	0 0	0	0 0	0	0 0	0					
Initial Fut:	220 2014	57	385 1201	107	101 472	51	63 470	399					
User Adj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00					
PHF Adj:	0.98 0.98	0.98	0.98 0.98	0.98	0.98 0.98	0.98	0.98 0.98	0.98					
PHF Volume:	224 2055	59	393 1225	109	103 481	52	64 479	407					
Reduc Vol:	0 0	0	0 0	0	0 0	0	0 0	0					
Reduced Vol:	224 2055	59	393 1225	109	103 481	52	64 479	407					
PCE Adj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00					
MLF Adj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00					
FinalVolume:	224 2055	59	393 1225	109	103 481	52	64 479	407					
-----													
Saturation Flow Module:													
Sat/Lane:	1900 1900	1900	1900 1900	1900	1900 1900	1900	1900 1900	1900					
Adjustment:	0.92 0.88	0.88	0.91 0.89	0.89	0.60 0.60	0.83	0.96 0.96	0.83					
Lanes:	1.00 2.92	0.08	2.00 2.76	0.24	0.35 1.65	1.00	0.12 0.88	1.00					
Final Sat:	1751 4873	139	3466 4659	413	403 1889	1583	214 1605	1583					
-----													
Capacity Analysis Module:													
Vol/Sat:	0.13 0.42	0.42	0.11 0.26	0.26	0.25 0.25	0.03	0.30 0.30	0.26					
Crit Moves:	****	****	****	****	****	****	****	****					
Green/Cycle:	0.11 0.43	0.43	0.16 0.48	0.48	0.27 0.27	0.38	0.27 0.27	0.43					
Volume/Cap:	1.16 0.98	0.98	0.71 0.55	0.55	0.94 0.94	0.09	1.11 1.11	0.60					
Delay/Veh:	160.1 39.5	39.5	47.3 15.5	15.5	60.4 60.4	20.2 109.2	109 25.7						
User DelAdj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00					
AdjDel/Veh:	160.1 39.5	39.5	47.3 15.5	15.5	60.4 60.4	20.2 109.2	109 25.7						
LOS by Move:	F D D B B E E C F C												
HCM2KAVGQ:	10 23 23 5 8	8	14 14 1	1	27 27 10								
-----													
Note: Queue reported is the number of cars per lane.													

Tier 2 AM		Mon Jan 4, 2010 09:14:49										Page 7-1	
-----													
19th Ave CS													
Tier 2													
-----													
Level of Service Computation Report													
2000 HCM Operations Method (Future Volume Alternative)													
*****													
Intersection #1050 Junipero Serra / Winston / Mercedes													
*****													
Cycle (sec):	100	Critical Vol./Cap.(X):		0.772									
Loss Time (sec):	14	Average Delay (sec/veh):		38.3									
Optimal Cycle:	100	Level Of Service:		D									
*****													
Street Name: Junipero Serra Winston / Mercedes													
Approach: North Bound South Bound East Bound West Bound													
Movement: L - T - R L - T - R L - T - R L - T - R													
Control: Protected Protected Protected Protected													
Rights: Include Include Include Include													
Min. Green:	19 40	40	19 40	40	27 27	27 27	27 27	27 27	27 27	27 27	27 27	27 27	27 27
Y+R:	4.0 4.0	4.0	4.0 4.0	4.0	4.0 4.0	4.0 4.0	4.0 4.0	4.0 4.0	4.0 4.0	4.0 4.0	4.0 4.0	4.0 4.0	4.0 4.0
Lanes:	1 0 2 1	0	1 0 2 1	0	1 0 1 0	1 0 1 0	1 0 1 0	1 0 1 0	1 0 1 0	1 0 1 0	1 0 1 0	1 0 1 0	1 0 1 0
-----													
Volume Module:													
Base Vol:	186 1681	29	103 1024	72	80 63	73	64 147	62					
Growth Adj:	1.07 1.14	1.16	1.14 1.09	1.05	1.16 1.19	1.14	1.05 1.00	1.07					
Initial Bse:	199 1911	34	117 1118	75	93 75	83	67 147	66					
Added Vol:	56 38	4	1 -24	65	73 48	29	-6 82	0					
PasserByVol:	0 0	0	0 0	0	0 0	0	0 0	0					
Initial Fut:	255 1949	38	118 1094	140	166 123	112	61 229	66					
User Adj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00					
PHF Adj:	0.98 0.98	0.98	0.98 0.98	0.98	0.98 0.98	0.98	0.98 0.98	0.98					
PHF Volume:	260 1988	38	121 1117	143	169 125	115	62 234	68					
Reduc Vol:	0 0	0	0 0	0	0 0	0	0 0	0					
Reduced Vol:	260 1988	38	121 1117	143	169 125	115	62 234	68					
PCE Adj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00					
MLF Adj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00					
FinalVolume:	260 1988	38	121 1117	143	169 125	115	62 234	68					
-----													
Saturation Flow Module:													
Sat/Lane:	1900 1900	1900	1900 1900	1900	1900 1900	1900	1900 1900	1900					
Adjustment:	0.93 0.89	0.89	0.93 0.88	0.88	0.46 0.98	0.83	0.64 0.98	0.83					
Lanes:	1.00 2.94	0.06	1.00 2.66	0.34	1.00 1.00	1.00	1.00 1.00	1.00					
Final Sat:	1769 4972	96	1769 4429	568	868 1862	1583	1216 1862	1583					
-----													
Capacity Analysis Module:													
Vol/Sat:	0.15 0.40	0.40	0.07 0.25	0.25	0.20 0.07	0.07	0.05 0.13	0.04					
Crit Moves:	****	****	****	****	****	****	****	****					
Green/Cycle:	0.19 0.40	0.40	0.19 0.40	0.40	0.27 0.27	0.27	0.27 0.27	0.27					
Volume/Cap:	0.77 1.00	1.00	0.36 0.63	0.63	0.72 0.25	0.27	0.19 0.46	0.16					
Delay/Veh:	54.3 46.8	46.8	38.2 23.0	23.0	50.7 29.8	30.3 29.4	33.5 28.6						
User DelAdj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00					
AdjDel/Veh:	54.3 46.8	46.8	38.2 23.0	23.0	50.7 29.8	30.3 29.4	33.5 28.6						
LOS by Move:	D D	D	D C	C	D C	C	C C	C					
HCM2kVgQ:	7 25	25	3 10	10	4 3	3	2 6	2					
*****													
Note: Queue reported is the number of cars per lane.													
-----													



Tier 2 AM	Mon Jan 4, 2010 09:14:49	19th Ave CS	Tier 2	Page 8-1
Level Of Service Computation Report				
2000 HCM Operations Method (Future Volume Alternative)				
Intersection #1060 Junipero Serra / Holloway				
Cycle (sec):	100	Critical Vol./Cap.(X):	0.716	
Loss Time (sec):	14	Average Delay (sec/veh):	36.9	
Optimal Cycle:	100	Level Of Service:	D	
Street Name: Junipero Serra				
Approach: North Bound				
Movement: L - T - R L - T - R L - T - R L - T - R				
Control:	Protected	Protected	Permitted	Permitted
Rights:	Include	Include	Include	Include
Min. Green:	19 39 39	19 39 39	28 28 28	28 28 28
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	1 0 2 1 0	1 0 2 1 0	1 0 1 0 1	1 0 1 0 1
Volume Module:				
Base Vol:	234 1520	60 114 956	84 163 106	16 162 129 118
Growth Adj:	1.08 1.14	1.07 1.09	1.06 1.07	1.01 1.05 1.06 1.02 1.08
Initial Bse:	253 1728	64 120 1044	89 175 107	17 171 132 128
Added Vol:	63 59	2 12 5	-18 25 -12	0 -6 -12 14
PasserByVol:	0 0	0 0	0 0	0 0 0 0
Initial Fut:	316 1787	66 132 1049	71 200 95	17 165 120 142
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00
PHF Adj:	0.98 0.98	0.98 0.98	0.98 0.98	0.98 0.98 0.98 0.98
PHF Volume:	322 1823	68 135 1070	72 204 97	17 169 123 144
Reduc Vol:	0 0	0 0	0 0	0 0 0 0
Reduced Vol:	322 1823	68 135 1070	72 204 97	17 169 123 144
PCE Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00
MLF Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00
FinalVolume:	322 1823	68 135 1070	72 204 97	17 169 123 144
Saturation Flow Module:				
Sat/Lane:	1900 1900	1900 1900	1900 1900	1900 1900
Adjustment:	0.93 0.89	0.89 0.88	0.65 0.98	0.83 0.68 0.98 0.83
Lanes:	1.00 2.89	0.11 1.00	2.81 1.00	1.00 1.00 1.00 1.00
Final Sat:	1769 4877	181 1769 4719	319 1227 1862	1583 1289 1862 1583
Capacity Analysis Module:				
Vol/Sat:	0.18 0.37	0.37 0.08	0.23 0.17	0.05 0.01 0.13 0.07 0.09
Crit Moves:	****	****	****	****
Green/Cycle:	0.19 0.39	0.39 0.19	0.39 0.28	0.28 0.28 0.28 0.28
Volume/Cap:	0.96 0.96	0.96 0.40	0.58 0.59	0.19 0.04 0.47 0.24 0.33
Delay/Veh:	79.9 39.5	39.5 39.0	23.0 38.5	28.1 26.4 34.1 28.8 30.5
User DelAdj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00
AdjDel/Veh:	79.9 39.5	39.5 39.0	23.0 38.5	28.1 26.4 34.1 28.8 30.5
LOS by Move:	E D D D	D C C D	C C C D	C C C C
HCM2kAvgQ:	10 20	20 3 9	6 2 0	5 3 4
Note: Queue reported is the number of cars per lane.				

Tier 2 AM	Mon Jan 4, 2010 09:14:49	19th Ave CS	Tier 2	Page 9-1
Level Of Service Computation Report				
2000 HCM Operations Method (Future Volume Alternative)				
Intersection #1070 Junipero Serra / 19th				
Cycle (sec):	90	Critical Vol./Cap.(X):	0.968	
Loss Time (sec):	0	Average Delay (sec/veh):	108.3	
Optimal Cycle:	180	Level Of Service:	F	
Street Name: Junipero Serra				
Approach: North Bound				
Movement: L - T - R L - T - R L - T - R L - T - R				
Control:	Split Phase	Split Phase	Permitted	Permitted
Rights:	Include	Ignore	Ovl	Include
Min. Green:	46 46 46	18 18 18	9 9 9	9 9 9
Y+R:	17.0 17.0 17.0	17.0 17.0 17.0	17.0 17.0 17.0	17.0 17.0 17.0
Lanes:	2 1 0 1 0	0 1 2 1 0	0 0 1 0 3	1 0 0 1 0
Volume Module:				
Base Vol:	2208 1679	8 0 1210	4 0 71 3047	32 56 62
Growth Adj:	1.13 1.14	1.12 1.10	1.09 1.11	1.12 1.10 1.11 1.12 1.13
Initial Bse:	2494 1908	9 0 1321	4 0 78 3345	35 63 70
Added Vol:	61 108	3 0 -1	0 0 21 119	0 0 15
PasserByVol:	0 0	0 0	0 0	0 0 0
Initial Fut:	2555 2016	12 0 1320	4 0 99 3464	35 63 85
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00
PHF Adj:	0.98 0.98	0.98 0.98	0.98 0.98	0.98 0.98 0.98 0.98
PHF Volume:	2607 2058	12 0 1347	0 0 101 3535	36 64 87
Reduc Vol:	0 0	0 0	0 0	0 0 0
Reduced Vol:	2607 2058	12 0 1347	0 0 101 3535	36 64 87
PCE Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00
MLF Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00
FinalVolume:	2607 2058	12 0 1347	0 0 101 3535	36 64 87
Saturation Flow Module:				
Sat/Lane:	1900 1900	1900 1900	1900 1900	1900 1900
Adjustment:	0.97 0.91	0.91 0.89	0.91 1.00	0.98 0.81 0.44 0.90 0.90
Lanes:	2.17 1.82	0.01 0.00	4.00 0.00	1.00 3.00 1.00 0.43 0.57
Final Sat:	3977 3139	19 0 6778	0 0 1862 4596	827 723 979
Capacity Analysis Module:				
Vol/Sat:	0.66 0.66	0.66 0.00	0.20 0.00	0.05 0.77 0.04 0.09 0.09
Crit Moves:	****	****	****	****
Green/Cycle:	0.51 0.51	0.51 0.20	0.20 0.10	0.10 0.67 0.10 0.10 0.10
Volume/Cap:	1.29 1.29	1.29 0.00	0.99 0.00	0.54 1.15 0.44 0.89 0.89
Delay/Veh:	147.1 147.1	147.1 0.0	59.0 0.0	0.0 49.5 79.0 54.0 84.3 84.3
User DelAdj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00 1.00
AdjDel/Veh:	147.1 147.1	147.1 0.0	59.0 0.0	0.0 49.5 79.0 54.0 84.3 84.3
LOS by Move:	F F F A	E A A D	A D E F	D F F F
HCM2kAvgQ:	71 65	65 0 14	0 0 3 62	2 7 7
Note: Queue reported is the number of cars per lane.				



19th Ave CS  
Tier 2

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1110 19th / Sloat  
Cycle (sec): 90 Critical Vol./Cap.(X): 1.508  
Loss Time (sec): 9 Average Delay (sec/veh): 119.3  
Optimal Cycle: 180 Level Of Service: F

Street Name: 19th Sloat  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Protected Permitted+Prot Permitted  
Rights: Include Include Include Include Include  
Min. Green: 33 33 33 12 49 49 4 32 32 23 23 23  
Y+R: 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0  
Lanes: 0 0 2 1 0 1 0 2 1 0 1 1 0 0 0 3 0 1

Volume Module:  
Base Vol: 0 1964 25 312 2778 127 247 1029 62 0 873 403  
Growth Adj: 1.16 1.14 1.16 1.14 1.09 1.14 1.16 1.19 1.14 1.14 1.19 1.16  
Initial Bse: 0 2232 29 355 3034 145 287 1221 71 0 1036 468  
Added Vol: 0 110 2 4 35 5 7 3 0 0 13 23  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2342 31 359 3069 150 294 1224 71 0 1049 491  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2390 32 367 3131 153 300 1249 72 0 1070 501  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2390 32 367 3131 153 300 1249 72 0 1070 501  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2390 32 367 3131 153 300 1249 72 0 1070 501

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 0.93 0.89 0.89 0.58 0.88 0.88 1.00 0.89 0.83  
Lanes: 0.00 2.96 0.04 1.00 2.86 0.14 1.00 2.84 0.16 0.00 3.00 1.00  
Final Sat: 0 5007 66 1769 4813 235 1106 4729 273 0 5083 1583

Capacity Analysis Module:  
Vol/Sat: 0.00 0.48 0.48 0.21 0.65 0.65 0.27 0.26 0.26 0.00 0.21 0.32  
Vol/Mov: 0.00 0.48 0.48 0.21 0.65 0.65 0.27 0.26 0.26 0.00 0.21 0.32  
Crit Moves: 0.00 0.37 0.37 0.15 0.52 0.52 0.38 0.38 0.38 0.00 0.26 0.26  
Green/Cycle: 0.00 0.37 0.37 0.15 0.52 0.52 0.38 0.38 0.38 0.00 0.26 0.26  
Volume/Cap: 0.00 1.30 1.30 1.39 1.26 1.26 0.75 0.69 0.69 0.00 0.82 1.24  
Delay/Veh: 0.00 166.3 166.3 237.4 137.5 137.5 36.1 24.8 24.8 0.0 37.6 160.4  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.00 166.3 166.3 237.4 137.5 137.5 36.1 24.8 24.8 0.0 37.6 160.4  
LOS by Move: A F F F F F D C C A D F  
HCM2KAVGQ: 0 49 49 25 66 66 10 12 12 0 13 29  
Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 2

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1100 19th / Taraval  
Cycle (sec): 90 Critical Vol./Cap.(X): 0.829  
Loss Time (sec): 10 Average Delay (sec/veh): 28.9  
Optimal Cycle: 89 Level Of Service: C

Street Name: 19th Taraval  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 56 56 56 56 56 56 23 23 23 23 23 23  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 1 1 0 0 1 0 0 1 0 1 0

Volume Module:  
Base Vol: 0 2276 57 2 2656 58 2 201 50 0 228 50  
Growth Adj: 1.10 1.14 1.06 1.04 1.09 1.08 1.06 1.00 1.04 1.08 1.07 1.10  
Initial Bse: 0 2587 61 2 2900 63 2 201 52 0 244 55  
Added Vol: 0 146 3 0 60 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2733 64 2 2960 63 2 201 52 0 244 55  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2789 65 2 3021 64 2 205 53 0 249 56  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2789 65 2 3021 64 2 205 53 0 249 56  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2789 65 2 3021 64 2 205 53 0 249 56

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 0.84 0.84 0.84 0.86 0.86 0.86 0.95 0.90 0.90  
Lanes: 0.00 2.93 0.07 0.01 2.93 0.06 0.02 1.57 0.41 0.00 1.63 0.37  
Final Sat: 0 4953 115 3 4662 99 27 2571 665 0 2805 634

Capacity Analysis Module:  
Vol/Sat: 0.00 0.56 0.56 0.65 0.65 0.65 0.08 0.08 0.08 0.00 0.09 0.09  
Vol/Mov: 0.00 0.56 0.56 0.65 0.65 0.65 0.08 0.08 0.08 0.00 0.09 0.09  
Crit Moves: 0.00 0.63 0.63 0.63 0.63 0.63 0.26 0.26 0.26 0.00 0.26 0.26  
Green/Cycle: 0.00 0.63 0.63 0.63 0.63 0.63 0.26 0.26 0.26 0.00 0.26 0.26  
Volume/Cap: 0.00 0.89 0.89 1.02 1.02 1.02 0.31 0.31 0.31 0.00 0.35 0.35  
Delay/Veh: 0.00 18.0 18.0 39.1 39.1 39.1 28.1 28.1 28.1 0.0 28.5 28.5  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.00 18.0 18.0 39.1 39.1 39.1 28.1 28.1 28.1 0.0 28.5 28.5  
LOS by Move: A B B D D C C C A C C  
HCM2KAVGQ: 0 28 28 42 42 42 3 3 3 0 4 4  
Note: Queue reported is the number of cars per lane.



19th Ave CS  
Tier 2

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1120 19th / Ocean

Cycle (sec): 90 Critical Vol./Cap.(X): 1.093  
 Loss Time (sec): 9 Average Delay (sec/veh): 46.1  
 Optimal Cycle: 180 Level Of Service: D

Street Name: 19th Ocean

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted  
 Rights: WideBypass WideBypass Include Include  
 Min. Green: 54 54 54 54 26 26 26 26 26 26  
 Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
 Lanes: 0 1 1 0 0 0 2 1 0 0 1 0 0 0 1 0 0

Volume Module:

Base Vol: 2 1809 45 0 2766 187 83 274 47 21 230 157  
 Growth Adj: 1.16 1.14 1.09 1.14 1.16 1.19 1.14 1.14 1.19 1.16  
 Initial Bse: 2 2056 52 0 3020 213 96 325 54 24 273 182  
 Added Vol: 0 112 0 0 35 0 0 0 0 0 0 0  
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
 Initial Fut: 2 2168 52 0 3055 213 96 325 54 24 273 182  
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
 PHF Volume: 2 2212 53 0 3118 217 98 332 55 24 278 186  
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
 Reduced Vol: 2 2212 53 0 3118 217 98 332 55 24 278 186  
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 MUF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 FinalVolume: 2 2212 53 0 3118 217 98 332 55 24 278 186

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
 Adjustment: 0.78 0.78 0.78 1.00 0.88 0.88 0.83 0.96 0.96 0.80 0.80 0.80  
 Lanes: 0.01 2.92 0.07 0.00 2.80 0.20 1.00 0.86 0.14 0.05 0.57 0.38  
 Final Sat.: 5 4336 105 0 4704 328 1570 1565 258 76 867 580

Capacity Analysis Module:

Vol/Sat: 0.51 0.51 0.51 0.00 0.66 0.66 0.06 0.21 0.21 0.32 0.32 0.32  
 Crit Moves: \*\*\*\*  
 Green/Cycle: 0.60 0.60 0.60 0.60 0.60 0.60 0.29 0.29 0.29 0.29 0.29  
 Volume/Cap: 0.85 0.85 0.85 0.00 1.10 1.10 0.21 0.72 0.72 1.09 1.09 1.09  
 Delay/Veh: 12.1 12.1 12.1 0.0 63.0 63.0 25.0 36.5 36.5 100.8 101 100.8  
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 AdjDel/Veh: 12.1 12.1 12.1 0.0 63.0 63.0 25.0 36.5 36.5 100.8 101 100.8  
 LOS by Move: B B B A E C D D F F F  
 HCM2kAVGQ: 16 16 16 0 46 46 2 10 10 23 23 23

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 2

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1130 19th / Eucalyptus

Cycle (sec): 90 Critical Vol./Cap.(X): 0.865  
 Loss Time (sec): 9 Average Delay (sec/veh): 23.1  
 Optimal Cycle: 90 Level Of Service: C

Street Name: 19th Eucalyptus

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted  
 Rights: Include Include Include Include  
 Min. Green: 56 56 56 56 25 25 25 25 25 25  
 Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
 Lanes: 0 0 2 1 0 0 2 1 0 1 1 0 1 0 0 0 1 0 0

Volume Module:

Base Vol: 0 1848 21 0 2818 58 74 125 90 10 148 14  
 Growth Adj: 1.16 1.14 1.16 1.14 1.09 1.14 1.16 1.19 1.14 1.14 1.19 1.16  
 Initial Bse: 0 2100 24 0 3077 66 86 148 103 11 176 16  
 Added Vol: 0 105 3 0 19 16 8 14 0 7 30 0  
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
 Initial Fut: 0 2205 27 0 3096 82 94 162 103 18 206 16  
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
 PHF Volume: 0 2250 28 0 3159 84 96 166 105 19 210 17  
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
 Reduced Vol: 0 2250 28 0 3159 84 96 166 105 19 210 17  
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 MUF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 FinalVolume: 0 2250 28 0 3159 84 96 166 105 19 210 17

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
 Adjustment: 1.00 0.89 0.89 1.00 0.89 0.89 0.66 0.66 0.66 0.94 0.94  
 Lanes: 0.00 2.96 0.04 0.00 2.92 0.08 1.00 1.23 0.77 0.08 0.85 0.07  
 Final Sat.: 0 5011 62 0 4932 131 1251 1533 969 136 1522 120

Capacity Analysis Module:

Vol/Sat: 0.00 0.45 0.45 0.00 0.64 0.64 0.08 0.11 0.11 0.14 0.14  
 Crit Moves: \*\*\*\*  
 Green/Cycle: 0.62 0.62 0.62 0.62 0.62 0.62 0.28 0.28 0.28 0.28 0.28  
 Volume/Cap: 0.00 0.72 0.72 0.00 1.03 1.03 0.27 0.38 0.38 0.49 0.49  
 Delay/Veh: 0.0 7.5 7.5 0.0 33.0 33.0 25.5 27.1 27.1 30.1 30.1  
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 AdjDel/Veh: 0.0 7.5 7.5 0.0 33.0 33.0 25.5 27.1 27.1 30.1 30.1  
 LOS by Move: A A A A C C C C C C C  
 HCM2kAVGQ: 0 11 11 0 36 36 2 3 3 6 6

Note: Queue reported is the number of cars per lane.



19th Ave CS  
Tier 2

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1160 19th / Holloway  
Cycle (sec): 90 Critical Vol./Cap.(X): 0.930  
Loss Time (sec): 9 Average Delay (sec/veh): 59.7  
Optimal Cycle: 114 Level Of Service: E

Street Name:	19th										Holloway									
Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Permitted					Permitted					Permitted					Permitted				
Rights:	Include					Include					Include					Include				
Min. Green:	48		48		48	48		48		48	33		33		33	33		33		33
Y+R:	9.0		9.0		9.0	9.0		9.0		9.0	9.0		9.0		9.0	9.0		9.0		9.0
Lanes:	0	0	2	1	0	0	0	3	0	1	0	1	0	1	0	0	1	0	1	0

Volume Module:		130		138		56		143		55		37		370		50	
Base Vol:		1.07		1.14		1.18		1.18		1.23		1.16		1.05		1.00	
Growth Adj:		0.2601		0.3361		0.66		0.66		0.76		0.64		0.39		0.370	
Initial Bse:		0.29		-22		22		66		34		85		-4		37	
Added Vol:		0		0		0		0		0		0		0		0	
PasserByVol:		0		0		0		0		0		0		0		0	
Initial Fut:		0.2630		0.3339		0.66		1.32		210		149		35		407	
User Adj:		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Adj:		0.98		0.98		0.98		0.98		0.98		0.98		0.98		0.98	
PHF Volume:		0.2683		0.3407		0.3407		1.70		135		214		152		35	
Reduc Vol:		0		0		0		0		0		0		0		0	
Reduced Vol:		0.2683		0.3407		1.70		1.35		214		152		35		415	
PCE Adj:		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
MLF Adj:		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
FinalVolume:		0.2683		0.3407		1.70		1.35		214		152		35		415	

Saturation Flow Module:		1900		1900		1900		1900		1900		1900		1900		1900	
Sat/Lane:		1.00		0.89		0.83		0.58		0.58		0.81		0.81		0.81	
Adjustment:		0.00		2.86		0.14		0.00		3.00		1.00		0.54		0.85	
Lanes:		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00	
Final Sat.:		0.4805		2.42		0.4805		1.583		593		940		667		216	

Capacity Analysis Module:		0.00		0.56		0.00		0.61		0.11		0.23		0.23		0.16	
Vol/Sat:		0.00		0.56		0.00		0.61		0.11		0.23		0.23		0.16	
Crit Moves:		0.00		0.53		0.00		0.53		0.00		0.37		0.37		0.37	
Green/Cycle:		0.00		1.05		0.00		1.14		0.20		0.62		0.62		0.45	
Volume/Cap:		0.00		0.46		0.00		0.83		8.3		26.9		26.9		22.9	
Delay/Veh:		0.00		46.2		0.00		46.2		0.00		1.00		1.00		1.00	
User DelAdj:		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
AdjDel/Veh:		0.00		46.2		0.00		83.6		8.3		26.9		26.9		22.9	
LOS by Move:		A		D		A		F		A		C		C		C	
HCM2kAVGQ:		0		34		0		52		1		7		7		6	

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 2

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1170 19th / Crespi  
Cycle (sec): 90 Critical Vol./Cap.(X): 0.752  
Loss Time (sec): 0 Average Delay (sec/veh): 64.8  
Optimal Cycle: 75 Level Of Service: E

Street Name:		19th						Crespi								
Approach:		North Bound			South Bound			East Bound			West Bound					
Movement:		L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:		Permitted			Permitted			Permitted			Permitted					
Rights:		Include			Ignore			Split Phase			Split Phase					
Min. Green:		48	48	48	53	53	53	22	22	22	22	0	0	0	0	0
Y+R:		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:		1	0	3	0	0	0	3	0	1	1	0	0	0	0	0

Volume Module:		0		2266		0		3060		110		152		0		68	
Base Vol:		1.14		1.14		1.05		1.02		1.09		1.12		1.05		1.02	
Growth Adj:		0.2576		0		0.3342		123		159		0		70		0	
Initial Bse:		0		61		0		102		-43		-53		0		38	
Added Vol:		0		0		0		0		0		0		0		0	
PasserByVol:		0		0		0		0		0		0		0		0	
Initial Fut:		0.2637		0		0.3444		80		106		0		108		0	
User Adj:		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Adj:		0.98		0.98		0.98		0.98		0.98		0.98		0.98		0.98	
PHF Volume:		0.2690		0		0.3514		0		3514		0		110		0	
Reduc Vol:		0		0		0		0		0		0		0		0	
Reduced Vol:		0.2690		0		0.3514		0		3514		0		110		0	
PCE Adj:		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
MLF Adj:		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
FinalVolume:		0.2690		0		0.3514		0		3514		0		110		0	



Tier 2 AM	Mon Jan 4, 2010 09:14:49	Page 21-1
-----		
19th Ave CS		
Tier 2		
-----		
Level Of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
-----		
Intersection #181 Chumassero / Brotherhood		
-----		
Cycle (sec):	100	Critical Vol./Cap.(X): 1.481
Loss Time (sec):	12	Average Delay (sec/veh): 241.8
Optimal Cycle:	180	Level Of Service: F
-----		
Street Name:	Chumassero	Brotherhood
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
-----		
Control:	Permitted	Protected
Rights:	Include	Include
Min. Green:	20 20 20	20 20 20
Y+R:	11.0 11.0 11.0	11.0 11.0 11.0
Lanes:	0 0 1 0 0	0 0 1 0 0
-----		
Volume Module:		
Base Vol:	28 16 99	119 26 54
Growth Adj:	1.08 1.06 1.07	1.01 1.08 1.02
Initial Bse:	30 17 106	121 26 55
Added Vol:	0 0 283	0 -14 341
PasserByVol:	0 0 0	0 0 0
Initial Fut:	30 17 106	404 26 41
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	31 17 108	412 27 42
Reduct Vol:	0 0 0	0 0 0
Reduced Vol:	31 17 108	412 27 42
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00
FinalVolume:	31 17 108	412 27 42
-----		
Saturation Flow Module:		
Sat/Lane:	1900 1900	1900 1900
Adjustment:	0.69 0.69 0.86	0.39 0.39 0.39
Lanes:	0.23 0.13 0.64	0.86 0.05 0.09
Final Sat.:	300 169 1053	639 41 65
-----		
Capacity Analysis Module:		
Vol/Sat:	0.10 0.10 0.10	0.65 0.65 0.65
Crit Moves:	0.20 0.20	0.20 0.20
Green/Cycle:	0.51 0.51	3.23 3.23
Volume/Cap:	41.7 41.7	1059 1059
Delay/Veh:	1.00 1.00	1.00 1.00
User DelAdj:	41.7 41.7	1059 1059
AdjDel/Veh:	41.7 41.7	1059 1059
LOS by Move:	D D D	F F F
HCM2kAvgQ:	4 4 5	56 56 0
-----		
Note: Queue reported is the number of cars per lane.		

Tier 2 AM	Mon Jan 4, 2010 09:14:49	Page 22-1
-----		
19th Ave CS		
Tier 2		
-----		
Level Of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
-----		
Intersection #190 Sunset / Taraval		
-----		
Cycle (sec):	60	Critical Vol./Cap.(X): 0.799
Loss Time (sec):	10	Average Delay (sec/veh): 43.0
Optimal Cycle:	60	Level Of Service: D
-----		
Street Name:	Sunset	Taraval
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
-----		
Control:	Permitted	Permitted
Rights:	Include	Include
Min. Green:	29 29 29	29 29 29
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 2 1 0	0 0 2 1 0
-----		
Volume Module:		
Base Vol:	0 2021 17	0 1965 11
Growth Adj:	1.10 1.12 1.06	1.05 1.08 1.08
Initial Bse:	0 2254 18	0 2130 12
Added Vol:	0 342 0	0 212 0
PasserByVol:	0 0 0	0 0 0
Initial Fut:	0 2596 18	0 2342 12
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	0 2649 18	0 2390 12
Reduct Vol:	0 0 0	0 0 0
Reduced Vol:	0 2649 18	0 2390 12
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00
FinalVolume:	0 2649 18	0 2390 12
-----		
Saturation Flow Module:		
Sat/Lane:	1900 1900	1900 1900
Adjustment:	1.00 0.89 0.89	1.00 0.89 0.89
Lanes:	0.00 2.98 0.02	0.00 2.98 0.02
Final Sat.:	0 5043 35	0 5053 26
-----		
Capacity Analysis Module:		
Vol/Sat:	0.00 0.53 0.53	0.00 0.47 0.47
Crit Moves:	0.00 0.48	0.00 0.48
Green/Cycle:	0.00 1.09	0.00 0.98
Volume/Cap:	0.0 62.2	0.0 29.0
Delay/Veh:	1.00 1.00	1.00 1.00
User DelAdj:	0.0 62.2	0.0 29.0
AdjDel/Veh:	0.0 62.2	0.0 29.0
LOS by Move:	A E E	A C C
HCM2kAvgQ:	0 33 33	0 24 1
-----		
Note: Queue reported is the number of cars per lane.		

19th Ave CS

Tier 2

## Level of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #1200 Sunset / Ocean  
\*\*\*\*\*Cycle (sec): 60 Critical Vol./Cap.(X): 0.664  
Loss Time (sec): 9 Average Delay (sec/veh): 13.7  
Optimal Cycle: 59 Level of Service: B

\*\*\*\*\*

Street Name: Sunset Ocean

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted

Rights: Include Include Include Include

Min. Green: 31 31 31 31 19 19 19 19

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 2 1 0 0 0 2 1 0 0 1 0 1

\*\*\*\*\*

Volume Module:

Base Vol: 0 1318 12 0 1735 81 54 83 18 47 23 192

Growth Adj: 1.00 1.00 1.07 1.11 1.07 1.01 1.07 1.15 1.11 1.01 1.00 1.00

Initial Bse: 0 1318 13 0 1853 82 58 95 20 48 23 192

Added Vol: 0 468 0 0 247 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 1786 13 0 2100 82 58 95 20 48 23 192

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 1822 13 0 2143 84 59 97 20 49 23 196

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 1822 13 0 2143 84 59 97 20 49 23 196

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Volume: 0 1822 13 0 2143 84 59 97 20 49 23 196

\*\*\*\*\*

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 1.00 0.89 0.89 1.00 0.89 0.89 0.87 0.87 0.87 0.71 0.98 0.83

Lanes: 0.00 2.98 0.02 0.00 2.89 0.11 0.33 0.55 0.12 1.00 1.00 1.00

Final Sat.: 0 5042 36 0 4863 190 550 908 190 1354 1862 1583

\*\*\*\*\*

Capacity Analysis Module:

Vol/Sat: 0.00 0.36 0.36 0.00 0.44 0.44 0.11 0.11 0.11 0.04 0.01 0.12

Crit Moves: \*\*\*\*

Green/Cycle: 0.00 0.53 0.53 0.00 0.53 0.53 0.32 0.32 0.32 0.32 0.32

Volume/Cap: 0.00 0.68 0.68 0.00 0.83 0.83 0.34 0.34 0.34 0.11 0.04 0.39

Delay/Veh: 0.0 11.6 11.6 0.0 14.7 14.7 17.4 17.4 17.4 15.1 14.3 18.3

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 11.6 11.6 0.0 14.7 14.7 17.4 17.4 17.4 15.1 14.3 18.3

LOS by Move: A B A B A B B B B B B B

HCM2KavgQ: 0 8 8 0 15 15 3 3 3 1 0 3

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS

Tier 2

## Level of Service Computation Report

2000 HCM 4-Way Stop Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #1210 Skyline / Sloat / 39th  
\*\*\*\*\*Cycle (sec): 100 Critical Vol./Cap.(X): 0.692  
Loss Time (sec): 0 Average Delay (sec/veh): 17.5  
Optimal Cycle: 0 Level of Service: C

\*\*\*\*\*

Street Name: Skyline / 39th Sloat

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Stop Sign Stop Sign

Rights: Ignore Ignore Ignore Ignore

Min. Green: 0 0 0 0 0 0 0 0

Lanes: 0 1 0 0 2 0 0 0 1 0 0 1 0 1 0 0

\*\*\*\*\*

Volume Module:

Base Vol: 251 0 646 0 14 7 1 331 194 341 280 60

Growth Adj: 1.19 1.41 1.35 1.15 1.00 1.00 1.35 1.29 1.15 1.00 1.00 1.19

Initial Bse: 299 0 872 0 14 7 1 427 222 341 280 72

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 299 0 873 0 14 7 1 443 222 344 314 72

User Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.00 0.98 0.98 0.98 0.98 0.98 0.00 0.98 0.98 0.98

PHF Volume: 306 0 0 0 14 7 1 452 0 351 320 73

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 306 0 0 0 14 7 1 452 0 351 320 73

PCE Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00

Final Volume: 306 0 0 0 14 7 1 452 0 351 320 73

\*\*\*\*\*

Saturation Flow Module:

Adj/Sat: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 0.00 2.00 0.00 0.67 0.33 0.01 1.99 1.00 2.00 1.63 0.37

Final Sat.: 442 0 1009 0 274 137 3 912 493 919 810 189

\*\*\*\*\*

Capacity Analysis Module:

Vol/Sat: 0.69 xxxxx 0.00 xxxxx 0.05 0.05 0.50 0.50 0.00 0.38 0.40 0.39

Crit Moves: \*\*\*\*

Delay/Veh: 25.8 0.0 0.0 0.0 11.4 11.4 17.3 17.3 0.0 14.9 14.1 13.7

AdjDel/Veh: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

LOS by Move: D \* \* \* B B C C \* B B B

ApproachDel: 25.8 11.4 11.4 17.3 17.3 17.3 14.4 14.4

Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

ApprAdjDel: 25.8 11.4 11.4 17.3 17.3 17.3 14.4 14.4

LOS by Appr: 1.9 1.9 0.0 0.0 0.0 0.0 0.9 0.9 0.0 0.6 0.6 0.6

AllwayAvgQ: 1.9 1.9 0.0 0.0 0.0 0.0 0.9 0.9 0.0 0.6 0.6 0.6

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS

Tier 2

## Level of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\* Intersection #1221 Skyline / Lake Merced (WBR) \*\*\*\*\*

Average Delay (sec/veh): 1.4 Worst Case Level of Service: C [ 15.1 ]

\*\*\*\*\* Street Name: Skyline \*\*\*\*\*

\*\*\*\*\* Approach: North Bound South Bound East Bound West Bound \*\*\*\*\*

\*\*\*\*\* Movement: L - T - R L - T - R L - T - R L - T - R \*\*\*\*\*

\*\*\*\*\* Control: Uncontrolled Uncontrolled Stop Sign Stop Sign \*\*\*\*\*

\*\*\*\*\* Rights: Include Include Include Include \*\*\*\*\*

\*\*\*\*\* Lanes: 0 0 2 0 0 1 0 2 0 0 0 0 0 0 0 0 0 0 0 1 \*\*\*\*\*

\*\*\*\*\* Volume Module: \*\*\*\*\*

Base Vol: 0 814 0 90 456 0 0 0 0 0 0 0 0 0 0 0 0 0 0 75

Growth Adj: 1.23 1.42 1.30 1.09 1.00 1.02 1.30 1.18 1.09 1.02 1.04 1.23

Initial Bse: 0 1156 0 98 456 0 0 0 0 0 0 0 0 0 0 0 0 0 0 92

Added Vol: 0 1 0 0 0 3 0 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 1157 0 98 459 0 0 0 0 0 0 0 0 0 0 0 0 0 0 92

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 1180 0 100 468 0 0 0 0 0 0 0 0 0 0 0 0 0 0 94

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

FinalVolume: 0 1180 0 100 468 0 0 0 0 0 0 0 0 0 0 0 0 0 0 94

\*\*\*\*\* Critical Gap Module: \*\*\*\*\*

Critical Gp:xxxxx xxxx 4.1 xxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 6.9

FollowUpTim:xxxxx xxxx 2.2 xxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 3.3

\*\*\*\*\* Capacity Module: \*\*\*\*\*

Conflict Vol: xxxx xxxx 1180 xxxx xxxxxx xxxxxx xxxxxx xxxxxx 590

Potent Cap.: xxxx xxxx xxxxxx 587 xxxx xxxxxx xxxxxx xxxxxx 451

Move Cap.: xxxx xxxx xxxxxx 587 xxxx xxxxxx xxxxxx xxxxxx 451

Volume/Cap: xxxx xxxx xxxx 0.17 xxxx xxxxxx xxxxxx xxxxxx 0.21

\*\*\*\*\* Level of Service Module: \*\*\*\*\*

2Way95thQ: xxxx xxxx xxxxxx 0.6 xxxx xxxxxx xxxxxx xxxxxx 0.8

Control Del:xxxxx xxxx xxxxxx 12.4 xxxx xxxxxx xxxxxx xxxxxx 15.1

LOS by Move: \* \* \* \* \* B \* \* \* \* \* \* \* \* \* \* C

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx xxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx

SharedQueue:xxxxx xxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx

Shrd ConDel:xxxxx xxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx

Shared LOS: \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \*

ApproachDel: xxxxxx \* xxxxxx 15.1 C

ApproachLOS: \*\*\*\*\*

\*\*\*\*\* Note: Queue reported is the number of cars per lane. \*\*\*\*\*

19th Ave CS

Tier 2

## Level of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\* Intersection #1222 Skyline / Lake Merced (WBLT) \*\*\*\*\*

Average Delay (sec/veh): 1.5 Worst Case Level of Service: F [ 52.8 ]

\*\*\*\*\* Street Name: Skyline \*\*\*\*\*

\*\*\*\*\* Approach: North Bound South Bound East Bound West Bound \*\*\*\*\*

\*\*\*\*\* Movement: L - T - R L - T - R L - T - R L - T - R \*\*\*\*\*

\*\*\*\*\* Control: Uncontrolled Uncontrolled Stop Sign Stop Sign \*\*\*\*\*

\*\*\*\*\* Rights: Include Include Include Include \*\*\*\*\*

\*\*\*\*\* Lanes: 1 0 1 1 0 0 0 2 0 1 0 0 0 0 0 1 0 1 0 0 \*\*\*\*\*

\*\*\*\*\* Volume Module: \*\*\*\*\*

Base Vol: 5 814 90 0 423 33 0 0 0 0 43 5 0

Growth Adj: 1.23 1.42 1.30 1.09 1.00 1.02 1.30 1.18 1.09 1.02 1.04 1.23

Initial Bse: 6 1155 117 0 424 34 0 0 0 0 44 5 0

Added Vol: 0 1 0 0 0 3 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 6 1156 117 0 427 34 0 0 0 0 44 5 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 6 1179 119 0 436 34 0 0 0 0 45 5 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0

FinalVolume: 6 1179 119 0 436 34 0 0 0 0 45 5 0

\*\*\*\*\* Critical Gap Module: \*\*\*\*\*

Critical Gp: 4.1 xxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 6.8 6.5 xxxxx

FollowUpTim: 2.2 xxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 3.5 4.0 xxxxx

\*\*\*\*\* Capacity Module: \*\*\*\*\*

Conflict Vol: 470 xxxx xxxxxx xxxxxx xxxxxx xxxxxx 1470 1722 xxxxxx

Potent Cap.: 1088 xxxx xxxxxx xxxxxx xxxxxx xxxxxx 118 88 xxxxxx

Move Cap.: 1088 xxxx xxxxxx xxxxxx xxxxxx xxxxxx 118 88 xxxxxx

Volume/Cap: 0.01 xxxx xxxxxx xxxxxx xxxxxx xxxxxx 0.38 0.06 xxxxx

\*\*\*\*\* Level of Service Module: \*\*\*\*\*

2Way95thQ: 0.0 xxxx xxxxxx xxxxxx xxxxxx xxxxxx 1.6 0.2 xxxxxx

Control Del: 8.3 xxxx xxxxxx xxxxxx xxxxxx xxxxxx 53.3 48.6 xxxxxx

LOS by Move: A \* \* \* \* \* \* \* \* \* \* F E \*

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx xxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx

SharedQueue:xxxxx xxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx

Shrd ConDel:xxxxx xxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx

Shared LOS: \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \*

ApproachDel: xxxxxx \* xxxxxx 52.8 F

ApproachLOS: \*\*\*\*\*

\*\*\*\*\* Note: Queue reported is the number of cars per lane. \*\*\*\*\*





Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1250 Lake Merced / Font  
\*\*\*\*\*  
Cycle (sec): 90 Critical Vol./Cap.(X): 1.471  
Loss Time (sec): 7 Average Delay (sec/veh): 171.6  
Optimal Cycle: 180 Level of Service: F  
\*\*\*\*\*

Street Name:		Lake Merced						Font					
Approach:		North Bound			South Bound			East Bound			West Bound		
Movement:		L	T	R	L	T	R	L	T	R	L	T	R
Control:		Permitted			Protected			Split Phase			Split Phase		
Rights:		Ignore			Include			Include			Include		
Min. Green:		43	43	43	15	61	61	0	0	0	22	0	22
Y+R:		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lanes:		0	0	2	0	1	1	0	2	0	0	0	0
		0	0	2	0	1	1	0	2	0	0	0	0

Volume Module:										
Base Vol:	0 1746	48	147 1549	0	0 0 0	0 43	0 304			
Growth Adj:	1.09 1.14	1.07	1.05 1.09	1.07	1.07 1.01	1.05	1.07 1.04	1.09		
Initial Bse:	0 1985	51	154 1692	0	0 0 0	0 46	0 331			
Added Vol:	0 342	21	193 109	0	0 0 0	0 20	0 422			
PasserByVol:	0 0	0	0 0	0	0 0 0	0 0	0 0			
Initial Fut:	0 2327	72	347 1801	0	0 0 0	0 66	0 753			
User Adj:	1.00 1.00	0.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00		
PHF Adj:	0.98 0.98	0.00	0.98 0.98	0.98	0.98 0.98	0.98	0.98 0.98	0.98		
PHF Volume:	0 2374	0	354 1837	0	0 0 0	0 67	0 768			
Reduc Vol:	0 0	0	0 0	0	0 0 0	0 0	0 0			
Reduced Vol:	0 2374	0	354 1837	0	0 0 0	0 67	0 768			
PCE Adj:	1.00 1.00	0.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00		
MLF Adj:	1.00 1.00	0.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00		
FinalVolume:	0 2374	0	354 1837	0	0 0 0	0 67	0 768			

Saturation Flow Module:										
Sat/Lane:	1900 1900	1900	1900 1900	1900	1900 1900	1900	1900 1900	1900		
Adjustment:	1.00 0.93	1.00	0.93 0.93	1.00	1.00 1.00	1.00	0.93 1.00	0.83		
Lanes:	0.00 2.00	1.00	1.00 2.00	0.00	0.00 0.00	0.00	1.00 0.00	1.00		
Final Sat.:	0 3538	1900	1769 3538	0	0 0 0	0 1769	0 1593			

Capacity Analysis Module:										
Vol/Sat:	0.00 0.67	0.00	0.20 0.52	0.00	0.00 0.00	0.00	0.04 0.00	0.49		
Crit Moves:	0.48 0.48	0.48	0.17 0.68	0.68	0.00 0.00	0.00	0.24 0.24	0.24		
Green/Cycle:	0.48 0.40	0.00	1.20 0.77	0.00	0.00 0.00	0.00	0.16 0.00	1.99		
Volume/Cap:	0.00 1.40	0.00	1.20 0.77	0.00	0.00 0.00	0.00	0.16 0.00	1.99		
Delay/Veh:	0.0 204	0.0 156.1	5.7 0.0	0.0 0.0	0.0 0.0	0.0 27.5	0.0 486.6			
User DelAdj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00		
AdjDel/Veh:	0.0 204	0.0 156.1	5.7 0.0	0.0 0.0	0.0 0.0	0.0 27.5	0.0 486.6			
LOS by Move:	A F A	A F A	A A A	A A A	A A A	A C A	A F A			
HCM2kAvgQ:	0 80	0 20	11 0	0 0 0	0 0 0	2 0	69			

Note: Queue reported is the number of cars per lane.

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1263 Lake Merced / Higuera  
\*\*\*\*\*  
Cycle (sec): 90 Critical Vol./Cap.(X): 1.202  
Loss Time (sec): 11 Average Delay (sec/veh): 140.7  
Optimal Cycle: 180 Level of Service: F  
\*\*\*\*\*

Street Name:		Lake Merced				Higuera			
Approach:		North Bound		South Bound		East Bound		West Bound	
Movement:		L	T - R	L	T - R	L	T - R	L	T - R
Control:		Permitted		Protected		Split Phase		Split Phase	
Rights:		Include		Include		Include		Include	
Min. Green:	41 41 41	41	11 59	59	0 0 0	0 20 20	20		
Y+R:	4.0 4.0 4.0	4.0	4.0 4.0	4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0		
Lanes:	0 0 1 1 0	1	0 2 0	0 0 0 0	0 0 0 0 0 0 0 1	0 0 0 1	0 0 0 1		

Volume Module:										
Base Vol:	0 1694	144	41 1601	0	0 0 0	0 77	0 58			
Growth Adj:	1.12 1.14	1.11	1.09 1.09	1.10	1.11 1.08	1.09	1.10 1.10	1.12		
Initial Bse:	0 1925	160	45 1748	0	0 0 0	0 84	0 65			
Added Vol:	0 96	97	69 60	0	0 0 0	0 473	0 268			
PasserByVol:	0 0	0	0 0	0	0 0 0	0 0	0 0			
Initial Fut:	0 2021	257	114 1808	0	0 0 0	0 557	0 333			
User Adj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00		
PHF Adj:	0.98 0.98	0.98	0.98 0.98	0.98	0.98 0.98	0.98	0.98 0.98	0.98		
PHF Volume:	0 2063	262	116 1845	0	0 0 0	0 569	0 340			
Reduc Vol:	0 0	0	0 0	0	0 0 0	0 0	0 0			
Reduced Vol:	0 2063	262	116 1845	0	0 0 0	0 569	0 340			
PCE Adj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00		
MLF Adj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00		
FinalVolume:	0 2063	262	116 1845	0	0 0 0	0 569	0 340			

Saturation Flow Module:										
Sat/Lane:	1900 1900	1900	1900 1900	1900	1900 1900	1900	1900 1900	1900		
Adjustment:	1.00 0.92	0.92	0.93 0.93	1.00	1.00 1.00	1.00	0.93 1.00	0.83		
Lanes:	0.00 1.77	0.23	1.00 2.00	0.00	0.00 0.00	0.00	1.00 0.00	1.00		
Final Sat.:	0 3086	392	1769 3538	0	0 0 0	0 1769	0 1583			

Capacity Analysis Module:										
Vol/Sat:	0.00 0.67	0.67	0.07 0.52	0.00	0.00 0.00	0.00	0.32 0.00	0.21		
Crit Moves:	0.46 0.46	0.46	0.12 0.66	0.66	0.00 0.00	0.00	0.22 0.22	0.22		
Green/Cycle:	0.46 0.47	1.47	0.54 0.80	0.00	0.00 0.00	0.00	1.45 0.00	0.97		
Volume/Cap:	0.00 1.47	1.47	0.54 0.80	0.00	0.00 0.00	0.00	1.45 0.00	0.97		
Delay/Veh:	0.0 234	234.0	46.3 7.6	0.0 0.0	0.0 0.0	0.0 250.0	0.0 74.7			
User DelAdj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00		
AdjDel/Veh:	0.0 234	234.0	46.3 7.6	0.0 0.0	0.0 0.0	0.0 250.0	0.0 74.7			
LOS by Move:	A F A	F D A	A A A	A A A	A A A	A F A	A E			
HCM2kAvgQ:	0 82	82	3 15	0 0 0	0 0 0	39	0 14			

Note: Queue reported is the number of cars per lane.

19th Ave CS

Tier 2

## Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1270 Lake Merced / Brotherhood

Cycle (sec): 107 Critical Vol./Cap.(X): 2.246  
Loss Time (sec): 15 Average Delay (sec/veh): 140.2  
Optimal Cycle: 180 Level Of Service: F

Street Name: Lake Merced Brotherhood  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Protected Include Split Phase Split Phase  
Rights: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
Min. Green: 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0  
Y+R: 0 0 2 0 1 2 0 1 0 0 0 0 0 0 0 0  
Lanes: 0 0 2 0 1 2 0 1 0 0 0 0 0 1 0 0

## Volume Module:

Base Vol: 0 416 209 1478 225 0 0 0 0 139 0 1483  
Growth Adj: 1.13 1.14 1.29 1.26 1.09 1.11 1.29 1.44 1.26 1.11 1.12 1.13  
Initial Bse: 0 473 269 1868 246 0 0 0 0 154 0 1674  
Added Vol: 0 117 -18 259 274 0 0 0 0 -16 0 76  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 590 251 2127 520 0 0 0 0 138 0 1750  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 602 256 2171 0 0 0 0 0 141 0 1785  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 602 256 2171 0 0 0 0 0 141 0 1785  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 602 256 2171 0 0 0 0 0 141 0 1785

## Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.83 0.90 1.00 1.00 1.00 1.00 1.00 0.93 1.00 0.83  
Lanes: 0.00 2.00 1.00 2.00 1.00 1.00 0.00 0.00 0.00 1.00 0.00 1.00  
Final Sat.: 0 3538 1583 3432 1900 0 0 0 0 1769 0 1583

## Capacity Analysis Module:

Vol/Sat: 0.00 0.17 0.16 0.63 0.00 0.00 0.00 0.00 0.00 0.08 0.00 1.13  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.21 0.21 0.21 0.43 0.68 0.68 0.00 0.00 0.00 0.22 0.22 1.00  
Volume/Cap: 0.00 0.83 0.79 1.47 0.00 0.00 0.00 0.00 0.00 0.35 0.00 1.13  
Delay/Veh: 0.0 51.1 57.6 242.0 0.0 0.0 0.0 0.0 0.0 37.4 0.0 66.3  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 51.1 57.6 242.0 0.0 0.0 0.0 0.0 0.0 37.4 0.0 66.3  
LOS by Move: A D E F A A A A A D A E  
HCM2kAvgQ: 0 12 10 81 0 0 0 0 0 4 0 32

Note: Queue reported is the number of cars per lane.



**Tier 2 Conditions**  
**Weekday PM Peak Hour**

Impact Analysis Report  
 Level Of Service

Intersection	Base Del/ LOS Veh	V/ C	Future Del/ LOS Veh	V/ C	Change in
#1010 Claremont / Taraval / Dewey /	A	7.1 0.653	A	7.4 0.672	+ 0.020 V/C
#1020 Santa Clara / Portola / Vicent	C	30.5 0.841	D	39.0 0.936	+ 8.525 D/V
#1030 Junipero Serra / Sloat / West	F	101.4 1.113	F	117.2 1.170	+15.817 D/V
#1040 Junipero Serra / Ocean / Eucal	D	39.7 0.820	E	70.2 1.063	+30.533 D/V
#1050 Junipero Serra / Winston / Mer	C	30.4 0.678	D	49.3 1.062	+18.865 D/V
#1060 Junipero Serra / Holloway	C	30.4 0.692	D	37.4 0.724	+ 7.049 D/V
#1070 Junipero Serra / 19th	F	110.5 1.236	F	163.1 1.302	+52.549 D/V
#1075 Junipero Serra / Chumasero	A	2.8 0.723	A	8.2 0.842	+ 5.362 D/V
#1080 Junipero Serra / I-280 NB On-R	F	129.3 1.294	F	151.9 1.400	+22.632 D/V
#1090 Junipero Serra / I-280 SB On-R	D	49.9 1.054	F	89.9 1.172	+40.016 D/V
#1100 19th / Taraval	B	19.4 0.839	C	24.0 0.883	+ 4.578 D/V
#1110 19th / Sloat	F	127.7 1.550	F	154.7 1.630	+26.999 D/V
#1120 19th / Ocean	F	146.9 1.568	F	180.5 1.633	+33.636 D/V
#1130 19th / Eucalyptus	E	69.7 1.079	F	86.4 1.180	+16.707 D/V
#1140 19th / Winston	F	97.7 1.325	F	207.7 1.699	+109.967 D/V
#1150 19th / Buckingham	F	408.9 1.759	F	604.0 2.196	+195.131 D/V
#1160 19th / Holloway	B	16.9 0.866	F	120.8 1.027	+103.936 D/V
#1170 19th / Crespi	D	50.4 0.843	E	69.9 0.872	+19.468 D/V
#1181 Chumasero / Brotherhood	F	227.5 1.104	F	456.0 1.737	+228.550 D/V
#1190 Sunset / Taraval	D	49.8 0.843	F	125.6 0.960	+75.784 D/V
#1200 Sunset / Ocean	B	13.3 0.687	C	30.5 0.827	+17.163 D/V
#1210 Skyline / Sloat / 39th	D	27.0 0.908	D	29.4 0.925	+ 0.017 V/C
#1221 Skyline / Lake Merced (WBR)	C	17.4 0.416	C	17.5 0.417	+ 0.048 D/V
#1222 Skyline / Lake Merced (WBLT)	F	116.8 0.894	F	118.6 0.900	+ 1.760 D/V

Intersection	Base Del/ LOS Veh	V/ C	Future Del/ LOS Veh	V/ C	Change in
#1230 Sunset / Lake Merced	F	OVRFL 1.328	F	OVRFL 2.491	Nan D/V
#1240 Lake Merced / Winston	E	66.6 0.971	F	188.9 1.372	+122.395 D/V
#1250 Lake Merced / Font	D	46.9 0.783	F	209.4 1.643	+162.431 D/V
#1263 Lake Merced / Higuera	E	79.1 0.844	F	226.5 1.566	+147.310 D/V
#1270 Lake Merced / Brotherhood	F	139.0 2.430	F	213.0 2.861	+74.026 D/V

Level Of Service Computation Report														
FHWA Roundabout Method (Future Volume Alternative)														
Intersection #1010 Claremont / Taraval / Dewey / Kensington														
Average Delay (sec/veh): 7.4 Level Of Service: A														
Street Name: Claremont Taraval / Dewey														
Approach: North Bound South Bound East Bound West Bound														
Movement: L - T - R L - T - R L - T - R L - T - R														
Control: Yield Sign Yield Sign Yield Sign Yield Sign														
Lanes: 1 1 1 1														
Volume Module:														
Base Vol:	17	24	239	50	63	5	10	259	55	324	338	31		
Growth Adj:	1.09	1.10	1.07	1.06	1.09	1.08	1.07	1.04	1.06	1.08	1.08	1.09		
Initial Bse:	18	26	255	53	69	5	11	269	59	351	364	34		
Added Vol:	1	0	16	0	0	0	0	0	0	22	0	0		
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0		
Initial Fut:	19	26	271	53	69	5	11	269	59	373	364	34		
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98		
PHF Volume:	20	27	277	54	70	6	11	275	60	381	371	34		
Reduc Vol:	0	0	0	0	0	0	0	0	0	0	0	0		
Reduced Vol:	20	27	277	54	70	6	11	275	60	381	371	34		
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
FinalVolume:	20	27	277	54	70	6	11	275	60	381	371	34		
PCE Module:														
AutoPCE:	20	27	277	54	70	6	11	275	60	381	371	34		
TruckPCE:	0	0	0	0	0	0	0	0	0	0	0	0		
ComboPCE:	0	0	0	0	0	0	0	0	0	0	0	0		
BicyclePCE:	0	0	0	0	0	0	0	0	0	0	0	0		
AdjVolume:	20	27	277	54	70	6	11	275	60	381	371	34		
Delay Module: >> Time Period: 0.25 hours <<														
CircVolume:	340			771				505				58		
MaxVolume:	1016			783				927				1169		
PedVolume:	0			0				0				0		
AdjMaxVol:	1016			783				927				1169		
ApproachVol:	324			130				345				786		
ApproachV/C:	0.32			0.17				0.37				0.67		
ApproachDel:	5.2			5.5				6.2				9.2		
ApproachLOS:	A			A				A				A		
Queue:	1.4			0.6				1.7				5.5		

Level Of Service Computation Report														
2000 HCM Operations Method (Future Volume Alternative)														
Intersection #1020 Santa Clara / Portola / Vicente														
Cycle (sec): 80 Critical Vol./Cap.(X): 0.936														
Loss Time (sec): 11 Average Delay (sec/veh): 39.0														
Optimal Cycle: 111 Level Of Service: D														
Street Name: Santa Clara / Vicente Portola														
Approach: North Bound South Bound East Bound West Bound														
Movement: L - T - R L - T - R L - T - R L - T - R														
Control: Permitted Permitted Protected Protected														
Rights: Include Include Include Include														
Min. Green:	23	23	23	23	23	23	9	36	36	9	36	36		
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Lanes:	0	0	1	0	0	0	1	0	0	1	0	1		
Volume Module:														
Base Vol:	22	273	85	86	191	48	48	1051	33	147	987	108		
Growth Adj:	1.03	1.00	1.03	1.07	1.03	1.07	1.03	1.10	1.07	1.07	1.10	1.03		
Initial Bse:	23	273	88	92	198	51	50	1155	35	157	1087	112		
Added Vol:	0	0	0	15	0	4	0	147	0	0	246	0		
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0		
Initial Fut:	23	273	88	107	198	55	50	1302	35	157	1333	112		
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98		
PHF Volume:	23	279	90	109	202	56	51	1329	36	160	1360	114		
Reduc Vol:	0	0	0	0	0	0	0	0	0	0	0	0		
Reduced Vol:	23	279	90	109	202	56	51	1329	36	160	1360	114		
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
FinalVolume:	23	279	90	109	202	56	51	1329	36	160	1360	114		
Saturation Flow Module:														
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Adjustment:	0.92	0.92	0.92	0.59	0.59	0.59	0.93	0.93	0.93	0.93	0.92	0.92		
Lanes:	0.06	0.71	0.23	0.30	0.55	0.15	1.00	1.95	0.05	1.00	1.85	0.15		
Final Sat:	104	1246	401	331	612	171	1769	3431	93	1769	3225	270		
Capacity Analysis Module:														
Vol/Sat:	0.22	0.22	0.22	0.33	0.33	0.33	0.03	0.39	0.39	0.09	0.42	0.42		
Crit Moves:	0.30	0.30	0.30	0.30	0.30	0.30	0.11	0.45	0.45	0.11	0.45	0.45		
Green/Cycle:	0.75	0.75	0.75	1.10	1.10	1.10	0.25	0.86	0.86	0.80	0.94	0.94		
Volume/Cap:	34.5	34.5	34.5	106.1	106	106.1	35.5	26.1	26.1	62.9	32.9	32.9		
Delay/Veh:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
User DelAdj:	34.5	34.5	34.5	106.1	106	106.1	35.5	26.1	26.1	62.9	32.9	32.9		
AdjDel/Veh:	10	10	10	17	17	17	1	19	19	6	24	24		
LOS by Move:	C	C	C	F	F	F	D	C	C	E	C	C		
HCM2kAvgQ:	10	10	10	17	17	17	1	19	19	6	24	24		
Note: Queue reported is the number of cars per lane.														



19th Ave CS

Tier 2

## Level of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1030 Junipero Serra / Sloat / West Portal / St. Francis

\*\*\*\*\*

Cycle (sec): 105 Critical Vol./Cap.(X): 1.170

Loss Time (sec): 16 Average Delay (sec/veh): 117.2

Optimal Cycle: 180 Level of Service: F

\*\*\*\*\*

Street Name: Junipero Serra / West Portal Sloat / St. Francis

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Permitted Split Phase Split Phase

Rights: Include Include Include Include Include

Min. Green: 16 53 53 32 32 32 15 15 15 20 20 20

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 3 0 1 1 0 0 0 2 1 0 3 0 1 0 1 0 1 0

\*\*\*\*\*

Volume Module:

Base Vol: 1027 1005 60 0 1045 261 852 420 471 20 405 10

Growth Adj: 1.13 1.12 1.10 1.13 1.18 1.16 1.10 1.08 1.13 1.16 1.15 1.13

Initial Bse: 1162 1121 66 0 1232 303 937 455 533 23 464 11

Added Vol: 33 120 0 0 209 0 2 0 29 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 1195 1241 66 0 1441 303 939 455 562 23 464 11

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 1219 1266 67 0 1470 310 958 464 0 24 474 12

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 1219 1266 67 0 1470 310 958 464 0 24 474 12

\*\*\*\*\*

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 0.89 0.92 0.92 1.00 0.88 0.88 0.89 0.97 1.00 0.93 0.93 0.93

Lanes: 3.00 1.90 0.10 0.00 2.48 0.52 3.00 1.00 1.00 0.09 1.86 0.05

Final Sat.: 5096 3302 176 0 4130 870 5096 1843 1900 164 3276 80

\*\*\*\*\*

Capacity Analysis Module:

Vol/Sat: 0.24 0.38 0.38 0.00 0.36 0.36 0.19 0.25 0.00 0.14 0.14 0.14

Crit Moves: \*\*\*\*

Green/Cycle: 0.17 0.48 0.48 0.00 0.30 0.30 0.18 0.18 0.00 0.19 0.19 0.19

Volume/Cap: 1.39 0.80 0.80 0.00 1.17 1.17 1.04 1.39 0.00 0.76 0.76 0.76

Delay/Veh: 227.4 23.0 23.0 0.0 119 118.7 83.6 238 0.0 48.1 48.1 48.1

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 227.4 23.0 23.0 0.0 119 118.7 83.6 238 0.0 48.1 48.1 48.1

LOS by Move: F C C A F F F A D D D

HCM2kAvqQ: 28 17 17 0 36 36 17 33 0 10 10 10

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS

Tier 2

## Level of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1040 Junipero Serra / Ocean / Eucalyptus

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 1.063

Loss Time (sec): 14 Average Delay (sec/veh): 70.2

Optimal Cycle: 180 Level of Service: E

\*\*\*\*\*

Street Name: Junipero Serra Ocean / Eucalyptus

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Permitted Permitted

Rights: Include Include Include Include Include

Min. Green: 11 43 43 16 48 48 27 27 27 27 27 27

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 2 1 0 2 0 2 1 0 0 1 0 1 0 1 0 1

\*\*\*\*\*

Volume Module:

Base Vol: 176 1567 35 356 1065 96 140 356 58 77 332 333

Growth Adj: 1.13 1.12 1.10 1.13 1.18 1.16 1.10 1.08 1.13 1.16 1.15 1.13

Initial Bse: 199 1748 38 403 1255 112 154 386 66 90 381 377

Added Vol: 0 107 43 35 194 9 12 91 0 25 66 34

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 199 1855 81 438 1449 121 166 477 66 115 447 411

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 203 1893 83 446 1479 123 169 486 67 117 456 419

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 203 1893 83 446 1479 123 169 486 67 117 456 419

\*\*\*\*\*

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 0.92 0.97 0.88 0.90 0.88 0.88 0.63 0.63 0.83 0.63 0.63 0.83

Lanes: 1.00 2.86 0.14 2.00 2.77 0.23 0.52 1.48 1.00 0.20 0.80 1.00

Final Sat.: 1751 5249 231 3432 4636 386 616 1770 1583 244 951 1583

\*\*\*\*\*

Capacity Analysis Module:

Vol/Sat: 0.12 0.36 0.36 0.13 0.32 0.32 0.27 0.27 0.04 0.48 0.48 0.26

Crit Moves: \*\*\*\*

Green/Cycle: 0.11 0.43 0.43 0.16 0.48 0.48 0.27 0.27 0.38 0.27 0.27 0.43

Volume/Cap: 1.05 0.84 0.84 0.81 0.66 0.66 1.02 1.02 0.11 1.77 1.77 0.62

Delay/Veh: 124.5 25.6 25.6 53.0 17.3 17.3 76.5 76.5 20.4 397.3 397 26.2

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 124.5 25.6 25.6 53.0 17.3 17.3 76.5 76.5 20.4 397.3 397 26.2

LOS by Move: F C C D B B E E C F F C

HCM2kAvqQ: 8 18 17 6 10 10 17 17 1 49 49 11

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

Tier 2 PM	Thu Feb 4, 2010 13:42:02	Page 7-1
19th Ave CS		
Tier 2		
Level Of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1050 Junipero Serra / Winston / Mercedes		
Cycle (sec):	100	Critical Vol./Cap.(X): 1.062
Loss Time (sec):	14	Average Delay (sec/veh): 49.3
Optimal Cycle:	180	Level Of Service: D
Street Name: Junipero Serra		
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Protected	Protected
Rights:	WideBypass	Include
Min. Green:	19 40 40	19 40 40
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	1 0 2 1 0	1 0 1 0 1
Volume Module:		
Base Vol:	224 1516	85 1130
Growth Adj:	1.05 1.12	1.11 1.18
Initial Bse:	236 1691	58 97 1332
Added Vol:	73 15 2	1 62 156
PasserByVol:	0 0 0	0 0 0
Initial Fut:	309 1706	60 98 1394
User Adj:	1.00 1.00	1.00 1.00
PHF Adj:	0.98 0.98	0.98 0.98
PHF Volume:	315 1741	61 100 1422
Reduc Vol:	0 0 0	0 0 0
Reduced Vol:	315 1741	61 100 1422
PCE Adj:	1.00 1.00	1.00 1.00
MLF Adj:	1.00 1.00	1.00 1.00
FinalVolume:	315 1741	61 100 1422
Saturation Flow Module:		
Sat/Lane:	1900 1900	1900 1900
Adjustment:	0.93 0.89	0.89 0.87
Lanes:	1.00 2.90	0.10 1.00
Final Sat:	1769 4886	172 1769 4120
Capacity Analysis Module:		
Vol/Sat:	0.18 0.36	0.36 0.06
Crit Moves:	****	****
Green/Cycle:	0.19 0.40	0.40 0.19
Volume/Cap:	0.94 0.89	0.89 0.30
Delay/Veh:	75.4 31.4	31.4 37.0
User DelAdj:	1.00 1.00	1.00 1.00
AdjDel/Veh:	75.4 31.4	31.4 37.0
LOS by Move:	E C C	D C F
HCM2kAVGQ:	10 18 18	2 18 22

Note: Queue reported is the number of cars per lane.

Tier 2 PM	Thu Feb 4, 2010 13:42:02	Page 8-1
19th Ave CS		
Tier 2		
Level Of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1060 Junipero Serra / Holloway		
Cycle (sec):	100	Critical Vol./Cap.(X): 0.724
Loss Time (sec):	14	Average Delay (sec/veh): 37.4
Optimal Cycle:	100	Level Of Service: D
Street Name: Junipero Serra		
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Protected	Protected
Rights:	Include	Include
Min. Green:	19 39 39	19 39 39
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	1 0 2 1 0	1 0 1 0 1
Volume Module:		
Base Vol:	183 1398	101 176 1001
Growth Adj:	1.11 1.12	1.08 1.11
Initial Bse:	202 1559	109 195 1180
Added Vol:	151 60 1	31 39 41
PasserByVol:	0 0 0	0 0 0
Initial Fut:	353 1619	110 226 1219
User Adj:	1.00 1.00	1.00 1.00
PHF Adj:	0.98 0.98	0.98 0.98
PHF Volume:	360 1652	112 230 1244
Reduc Vol:	0 0 0	0 0 0
Reduced Vol:	360 1652	112 230 1244
PCE Adj:	1.00 1.00	1.00 1.00
MLF Adj:	1.00 1.00	1.00 1.00
FinalVolume:	360 1652	112 230 1244
Saturation Flow Module:		
Sat/Lane:	1900 1900	1900 1900
Adjustment:	0.93 0.88	0.88 0.93
Lanes:	1.00 2.81	0.19 1.00
Final Sat:	1769 4718	319 1769 4419
Capacity Analysis Module:		
Vol/Sat:	0.20 0.35	0.35 0.13
Crit Moves:	****	****
Green/Cycle:	0.19 0.39	0.39 0.19
Volume/Cap:	1.07 0.90	0.90 0.69
Delay/Veh:	110.2 32.9	32.9 48.6
User DelAdj:	1.00 1.00	1.00 1.00
AdjDel/Veh:	110.2 32.9	32.9 48.6
LOS by Move:	F C C	D C C
HCM2kAVGQ:	14 17 17	6 12 12

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 2

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1070 Junipero Serra / 19th

Cycle (sec): 100 Critical Vol./Cap.(X): 1.302  
Loss Time (sec): 17 Average Delay (sec/veh): 163.1  
Optimal Cycle: 180 Level Of Service: F

Street Name: Junipero Serra 19th  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Split Phase Split Phase Permitted Permitted  
Rights: Ignore Ignore Ovl Include  
Min. Green: 54 54 20 20 9 9 9 9  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 2 1 0 1 0 0 1 2 1 0 0 0 1 0 3 1 0 0 1 0

Volume Module:  
Base Vol: 2410 1660 25 0 1178 17 0 123 3060 31 47 50  
Growth Adj: 1.09 1.12 1.06 1.09 1.18 1.12 1.06 1.01 1.09 1.12 1.06 1.09  
Initial Bse: 2621 1851 27 0 1388 19 0 124 3346 35 50 54  
Added Vol: 98 186 2 0 41 0 0 37 199 0 1 26  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 2719 2037 29 0 1429 19 0 161 3545 35 51 80  
User Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.00 0.98 0.98 0.00 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 2775 2079 0 0 1458 0 0 164 3617 35 52 82  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 2775 2079 0 0 1458 0 0 164 3617 35 52 82  
PCE Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 2775 2079 0 0 1458 0 0 164 3617 35 52 82

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.88 0.90 0.95 0.91 0.89 0.91 1.00 0.98 0.73 0.51 0.89 0.89  
Lanes: 2.32 1.68 0.00 0.00 4.00 0.00 0.00 1.00 3.00 1.00 0.39 0.61  
Final Sat.: 3863 2895 0 0 6778 0 0 1862 4178 966 655 1036

Capacity Analysis Module:  
Vol/Sat: 0.72 0.72 0.00 0.00 0.22 0.00 0.00 0.09 0.87 0.04 0.08 0.08  
Crit Moves: \*\*\*  
Green/Cycle: 0.50 0.50 0.20 0.20 0.20 0.14 0.14 0.14 0.68 0.14 0.14 0.14  
Volume/Cap: 1.44 1.44 0.00 0.00 1.08 0.00 0.00 0.63 1.27 0.26 0.57 0.57  
Delay/Veh: 217.3 217 0.0 0.0 87.7 0.0 0.0 51.6 131.1 43.0 49.6 49.6  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 217.3 217 0.0 0.0 87.7 0.0 0.0 51.6 131.1 43.0 49.6 49.6  
LOS by Move: F A A F A A D F D F D D  
HCM2kAvgQ: 87 87 0 0 18 0 0 6 79 1 5 5

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 2

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1080 Junipero Serra / I-280 NB On-Ramp / John Daly

Cycle (sec): 125 Critical Vol./Cap.(X): 1.400  
Loss Time (sec): 12 Average Delay (sec/veh): 151.9  
Optimal Cycle: 180 Level Of Service: F

Street Name: Junipero Serra / I-280 NB On-Ramp John Daly  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Split Phase Split Phase Split Phase Split Phase  
Rights: Ovl Ovl Ovl Include Ovl  
Min. Green: 6 6 6 6 6 6 31 31 31 31  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 2 0 1 1 1 1 0 0 1 1 2 1 0 1 1 1 2 0 1

Volume Module:  
Base Vol: 621 381 328 210 383 857 667 495 160 122 895 232  
Growth Adj: 1.19 1.13 1.11 1.28 1.47 1.36 1.11 1.09 1.28 1.36 1.25 1.19  
Initial Bse: 739 429 363 268 562 1167 738 537 204 166 1122 276  
Added Vol: 283 53 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 1022 482 363 268 562 1167 737 555 391 166 1122 290  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 1043 492 370 274 574 1190 752 567 399 169 1145 296  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 1043 492 370 274 574 1190 752 567 399 169 1145 296  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 1043 492 370 274 574 1190 752 567 399 169 1145 296

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.90 0.87 0.87 0.93 0.88 0.88 0.85 0.88 0.88 0.89 0.89 0.83  
Lanes: 2.00 1.71 1.29 1.00 0.65 1.35 2.22 1.63 1.15 1.00 3.00 1.00  
Final Sat.: 3432 2834 2133 1769 1089 2259 3608 2720 1916 1684 5053 1583

Capacity Analysis Module:  
Vol/Sat: 0.30 0.17 0.17 0.15 0.53 0.53 0.21 0.21 0.21 0.10 0.23 0.19  
Crit Moves: \*\*\*  
Green/Cycle: 0.19 0.19 0.33 0.33 0.33 0.57 0.25 0.25 0.25 0.14 0.14 0.47  
Volume/Cap: 1.61 0.92 0.53 0.47 1.61 0.92 0.84 0.84 0.84 0.72 1.61 0.40  
Delay/Veh: 333.3 63.8 34.4 34.1 322 31.3 47.9 47.9 47.9 52.7 335 22.2  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 333.3 63.8 34.4 34.1 322 31.3 47.9 47.9 47.9 52.7 335 22.2  
LOS by Move: F E C C F C D D D D F C  
HCM2kAvgQ: 47 15 10 8 75 34 12 12 12 8 37 7

Note: Queue reported is the number of cars per lane.



Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1090 Junipero Serra / I-280 SB On-Ramp / John Daly  
Cycle (sec): 120 Critical Vol./Cap.(X): 1.172  
Loss Time (sec): 8 Average Delay (sec/veh): 89.9  
Optimal Cycle: 180 Level Of Service: F

Street Name: Junipero Serra / I-280 SB On-Ramp John Daly  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Split Phase Split Phase Split Phase Split Phase  
Rights: Ovl Include Include Include  
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 0 0 2 0 0 0 0 0 0 2 0 2 0 0 0

Volume Module:  
Base Vol: 0 350 0 0 0 972 427 722 1966 0  
Growth Adj: 1.05 1.00 1.04 1.32 1.55 1.33 1.04 1.09 1.32 1.33 1.10 1.05  
Initial Bse: 0 365 0 0 0 1058 563 958 2172 0  
Added Vol: 0 34 0 0 0 171 36 0 283 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 399 0 0 0 1229 599 958 2455 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 408 0 0 0 1254 611 977 2505 0  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 408 0 0 0 1254 611 977 2505 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 408 0 0 0 1254 611 977 2505 0

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 1.00 0.73 1.00 1.00 1.00 1.00 0.85 0.85 0.90 0.93 1.00  
Lanes: 0.00 0.00 2.00 0.00 0.00 0.00 0.00 2.02 0.98 2.00 2.00 0.00  
Final Sat.: 0 0 2786 0 0 0 3250 1584 3432 3538 0

Capacity Analysis Module:  
Vol/Sat: 0.00 0.00 0.15 0.00 0.00 0.00 0.00 0.39 0.39 0.28 0.71 0.00  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.00 0.60 0.00 0.00 0.00 0.00 0.33 0.33 0.60 0.60 0.00  
Volume/Cap: 0.00 0.00 0.24 0.00 0.00 0.00 0.00 1.17 1.17 0.47 1.17 0.00  
Delay/Veh: 0.0 0.0 11.1 0.0 0.0 0.0 0.0 125 124.8 13.3 107 0.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 0.0 11.1 0.0 0.0 0.0 0.0 125 124.8 13.3 107 0.0  
LOS by Move: A A A A A A A F F F A  
HCM2kAvgQ: 0 0 4 0 0 0 0 40 40 9 69 0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1100 19th / Taraval  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.883  
Loss Time (sec): 10 Average Delay (sec/veh): 24.0  
Optimal Cycle: 99 Level Of Service: C

Street Name: 19th Taraval  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 66 66 66 66 66 66 23 23 23 23 23 23  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 0 2 1 0 0 1 0 1 0 1 0

Volume Module:  
Base Vol: 0 2131 104 0 2591 31 3 331 84 22 336 51  
Growth Adj: 1.06 1.12 1.06 1.09 1.18 1.09 1.06 1.00 1.09 1.09 1.00 1.06  
Initial Bse: 0 2377 110 0 3053 34 3 331 91 24 336 54  
Added Vol: 0 201 2 0 202 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2578 112 0 3255 34 3 331 91 24 336 54  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2630 114 0 3322 34 3 338 93 24 343 55  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2630 114 0 3322 34 3 338 93 24 343 55  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2630 114 0 3322 34 3 338 93 24 343 55

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 1.00 0.89 0.89 0.86 0.86 0.86 0.83 0.83 0.83  
Lanes: 0.00 2.88 0.12 0.00 2.97 0.03 0.01 1.56 0.43 0.12 1.62 0.26  
Final Sat.: 0 4842 210 0 5026 52 24 2538 701 182 2562 411

Capacity Analysis Module:  
Vol/Sat: 0.00 0.54 0.54 0.00 0.66 0.66 0.13 0.13 0.13 0.13 0.13 0.13  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.67 0.67 0.00 0.67 0.67 0.23 0.23 0.23 0.23 0.23 0.23  
Volume/Cap: 0.00 0.81 0.81 0.00 0.99 0.99 0.58 0.58 0.58 0.58 0.58 0.58  
Delay/Veh: 0.0 14.1 14.1 0.0 28.6 28.6 37.4 37.4 37.4 37.6 37.6 37.6  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 14.1 14.1 0.0 28.6 28.6 37.4 37.4 37.4 37.6 37.6 37.6  
LOS by Move: A B A C D D D D  
HCM2kAvgQ: 0 24 24 0 45 45 7 7 7 7 7 7

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 2

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #110 19th / Sloat  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 1.630  
Loss Time (sec): 9 Average Delay (sec/veh): 154.7  
Optimal Cycle: 180 Level of Service: F  
\*\*\*\*\*

Street Name: 19th Sloat  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Protected Permit+Prot Permitted  
Rights: Include Include Include Include  
Min. Green: 0 43 43 11 58 58 4 33 33 24 24 24 24  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 1 0 2 1 0 1 1 1 0 0 0 3 0 1

Volume Module:  
Base Vol: 0 2446 66 235 2609 321 185 1440 74 0 870 497  
Growth Adj: 1.13 1.12 1.10 1.13 1.18 1.16 1.10 1.08 1.13 1.16 1.15 1.13  
Initial Bse: 0 2728 73 266 3075 373 203 1560 84 0 998 562  
Added Vol: 0 164 2 16 170 18 22 13 0 0 13 47  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2892 75 282 3245 391 225 1573 84 0 1011 609  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2951 76 287 3311 399 230 1605 85 0 1031 622  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2951 76 287 3311 399 230 1605 85 0 1031 622  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2951 76 287 3311 399 230 1605 85 0 1031 622

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 0.93 0.88 0.88 0.41 0.88 0.88 1.00 0.89 0.83  
Lanes: 0.00 2.92 0.08 1.00 2.68 0.32 1.00 2.85 0.15 0.00 3.00 1.00  
Final Sat.: 0.4936 127 1769 4464 538 782 4764 253 0 5083 1593

Capacity Analysis Module:  
Vol/Sat: 0.00 0.60 0.60 0.16 0.74 0.74 0.29 0.34 0.34 0.00 0.20 0.39  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.43 0.43 0.11 0.54 0.54 0.37 0.37 0.37 0.00 0.27 0.27  
Volume/Cap: 0.00 1.39 1.39 1.44 1.37 1.37 0.79 0.92 0.92 0.00 0.75 1.44  
Delay/Veh: 0.0 203 203.1 269.9 183 183.5 42.5 38.0 38.0 0.0 36.9 248.7  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 203 203.1 269.9 183 183.5 42.5 38.0 38.0 0.0 36.9 248.7  
LOS by Move: A F F F F F F D D A D F  
HCM2kAVGQ: 0 70 70 22 87 87 9 22 22 0 12 44  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 2

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #120 19th / Ocean  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 1.633  
Loss Time (sec): 9 Average Delay (sec/veh): 180.5  
Optimal Cycle: 180 Level of Service: F  
\*\*\*\*\*

Street Name: 19th Ocean  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 64 64 64 64 64 64 26 26 26 26 26 26  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 0 2 1 0 1 0 0 1 0 0 1 0 0

Volume Module:  
Base Vol: 0 2340 47 0 2579 164 64 293 25 25 271 127  
Growth Adj: 1.13 1.12 1.10 1.13 1.18 1.16 1.10 1.08 1.13 1.16 1.15 1.13  
Initial Bse: 0 2610 52 0 3039 191 70 317 28 29 311 144  
Added Vol: 0 166 0 0 170 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2776 52 0 3209 191 70 317 28 29 311 144  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2832 53 0 3275 195 72 324 29 30 317 147  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2832 53 0 3275 195 72 324 29 30 317 147  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2832 53 0 3275 195 72 324 29 30 317 147

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.44 0.89 1.00 0.88 0.88 0.89 0.97 0.97 0.73 0.73 0.73  
Lanes: 0.00 2.97 0.03 0.00 2.83 0.17 1.00 0.92 0.08 0.06 0.64 0.30  
Final Sat.: 0.2511 47 0 4760 283 1687 1689 150 83 886 409

Capacity Analysis Module:  
Vol/Sat: 0.00 1.13 1.13 0.00 0.69 0.69 0.04 0.19 0.19 0.36 0.36 0.36  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.64 0.64 0.64 0.64 0.64 0.64 0.27 0.27 0.27 0.27 0.27 0.27  
Volume/Cap: 0.00 1.76 1.76 0.00 1.08 1.08 0.16 0.72 0.72 1.35 1.35 1.35  
Delay/Veh: 0.0 354 354.2 0.0 48.9 48.9 29.0 42.4 42.4 211.8 212 211.8  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 354 354.2 0.0 48.9 48.9 29.0 42.4 42.4 211.8 212 211.8  
LOS by Move: A F F A D D C D D F F F  
HCM2kAVGQ: 0 86 172 0 48 48 2 11 11 33 33 33  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1130 19th / Eucalyptus

Cycle (sec): 100 Critical Vol./Cap.(X): 1.180  
Loss Time (sec): 9 Average Delay (sec/veh): 86.4  
Optimal Cycle: 180 Level Of Service: F  
\*\*\*\*\*  
Street Name: 19th Eucalyptus  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 66 66 66 66 25 25 25 25  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 0 2 1 0 1 0 0 0 1 0 0

Volume Module:  
Base Vol: 0 2277 26 0 2555 114 170 169 54 9 167 17  
Growth Adj: 1.13 1.12 1.10 1.13 1.18 1.16 1.10 1.08 1.13 1.16 1.15 1.13  
Initial Bse: 0 2540 29 0 3011 133 187 183 61 10 192 19  
Added Vol: 0 121 18 0 137 33 45 84 0 13 62 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2661 47 0 3148 166 232 267 61 23 254 19  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2715 48 0 3212 169 237 273 62 24 259 20  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2715 48 0 3212 169 237 273 62 24 259 20  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2715 48 0 3212 169 237 273 62 24 259 20

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.53 0.89 1.00 0.89 0.89 0.64 0.64 0.64 0.93 0.93 0.93  
Lanes: 0.00 2.97 0.03 0.00 2.85 0.15 1.24 1.43 0.33 0.08 0.86 0.06  
Final Sat.: 0 3009 53 0 4795 252 1511 1741 398 139 1505 114

Capacity Analysis Module:  
Vol/Sat: 0.00 0.90 0.90 0.00 0.67 0.67 0.16 0.16 0.16 0.17 0.17 0.17  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.66 0.66 0.66 0.66 0.66 0.66 0.26 0.26 0.26 0.26 0.26  
Volume/Cap: 0.00 1.37 1.37 0.00 1.01 1.01 0.61 0.61 0.61 0.67 0.67  
Delay/Veh: 0.0 175 175.3 0.0 26.3 26.3 35.9 35.9 35.9 41.4 41.4  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 175 175.3 0.0 26.3 26.3 35.9 35.9 35.9 41.4 41.4  
LOS by Move: A F A C C D D D  
HCM2kAVQ: 0 65 106 0 40 40 6 6 6 9 9

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1140 19th / Winston

Cycle (sec): 100 Critical Vol./Cap.(X): 1.699  
Loss Time (sec): 13 Average Delay (sec/veh): 207.7  
Optimal Cycle: 180 Level Of Service: F  
\*\*\*\*\*  
Street Name: 19th Winston  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 16 44 44 44 26 26 26 26  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 2 0 2 1 0 0 0 3 0 1 1 1 0 1 0 1 0

Volume Module:  
Base Vol: 524 2162 50 0 2624 168 245 364 347 95 351 45  
Growth Adj: 1.03 1.12 1.05 1.09 1.18 1.06 1.05 1.01 1.09 1.06 1.00 1.03  
Initial Bse: 539 2411 53 0 3092 178 258 364 377 101 351 46  
Added Vol: 120 22 -34 0 81 102 116 374 133 36 325 1  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 659 2433 19 0 3173 280 374 738 510 137 676 47  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 672 2483 19 0 3238 286 382 753 520 139 690 48  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 672 2483 19 0 3238 286 382 753 520 139 690 48  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 672 2483 19 0 3238 286 382 753 520 139 690 48

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.90 0.89 0.89 1.00 1.34 0.83 0.31 0.23 0.83 0.49 0.49 0.49  
Lanes: 2.00 2.98 0.02 0.00 3.00 1.00 1.00 2.00 1.00 0.32 1.57 0.11  
Final Sat.: 3432 5039 39 0 7625 1583 586 878 1583 236 1465 102

Capacity Analysis Module:  
Vol/Sat: 0.20 0.49 0.49 0.00 0.42 0.18 0.65 0.86 0.33 0.47 0.47 0.47  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.16 0.44 0.44 0.44 0.44 0.44 0.27 0.27 0.27 0.27 0.27  
Volume/Cap: 1.22 1.12 1.12 0.00 0.97 0.41 2.46 3.24 1.24 1.78 1.78  
Delay/Veh: 158.3 84.4 84.4 0.0 32.5 18.0 700.6 1050 163.6 394.4 394.4  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 158.3 84.4 84.4 0.0 32.5 18.0 700.6 1050 163.6 394.4 394.4  
LOS by Move: F F A C B F F F  
HCM2kAVQ: 18 39 39 0 41 5 43 47 31 39 39

Note: Queue reported is the number of cars per lane.



19th Ave CS  
Tier 2

Level Of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)  
Intersection #1150 19th / Buckingham  
Average Delay (sec/veh): 28.3 Worst Case Level Of Service: F[604.0]  
Street Name: 19th Buckingham  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign  
Rights: Include Include Include Include  
Lanes: 0 0 3 0 0 0 0 3 0 1 0 0 0 1 0 0 0 0  
Volume Module:  
Base Vol: 0 2736 0 0 2996 68 0 0 278 0 0 0  
Growth Adj: 1.04 1.12 1.07 1.10 1.18 1.07 1.07 1.02 1.10 1.07 1.00 1.04  
Initial Bse: 0 3051 0 0 3531 73 0 0 305 0 0 0  
Added Vol: 0 108 0 0 192 58 0 0 39 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 3159 0 0 3723 131 0 0 344 0 0 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 3224 0 0 3799 133 0 0 351 0 0 0  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
FinalVolume: 0 3224 0 0 3799 133 0 0 351 0 0 0  
Critical Gap Module:  
Critical Gap: xxxxx xxxxx xxxxx xxxxx xxxxx 6.9 xxxxx xxxxx xxxxx  
FollowUpTm: xxxxx xxxxx xxxxx xxxxx xxxxx 3.3 xxxxx xxxxx xxxxx  
Capacity Module:  
Conflict Vol: xxxxx xxxxx xxxxx xxxxx xxxxx 1266 xxxxx xxxxx xxxxx  
Potent Cap: xxxxx xxxxx xxxxx xxxxx xxxxx 160 xxxxx xxxxx xxxxx  
Move Cap: xxxxx xxxxx xxxxx xxxxx xxxxx 160 xxxxx xxxxx xxxxx  
Volume/Cap: xxxxx xxxxx xxxxx xxxxx xxxxx 2.20 xxxxx xxxxx xxxxx  
Level Of Service Module:  
2Way95thQ: xxxxx xxxxx xxxxx xxxxx xxxxx 28.5 xxxxx xxxxx xxxxx  
Control Del: xxxxx xxxxx xxxxx xxxxx xxxxx 604.0 xxxxx xxxxx xxxxx  
LOS by Move: \* \* \* \* \* F \* \* \* \* \*  
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Shared Cap: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
SharedQueue: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
Shrd ConDel: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
Shared LOS: \* \* \* \* \* \* \* \* \* \* \*  
ApproachDel: xxxxxx 604.0 xxxxxx  
ApproachLOS: \* \* \* \* \* F \* \* \* \* \*  
Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 2

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1160 19th / Holloway  
Cycle (sec): 100 Critical Vol./Cap.(X): 1.027  
Loss Time (sec): 0 Average Delay (sec/veh): 120.8  
Optimal Cycle: 180 Level Of Service: F  
Street Name: 19th Holloway  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 0 59 59 0 59 59 32 32 32 32  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 0 3 0 1 0 1 0 0 1 0  
Volume Module:  
Base Vol: 0 2489 143 0 3047 145 88 167 88 45 296 41  
Growth Adj: 1.23 1.12 1.15 1.18 1.18 1.27 1.15 1.19 1.18 1.27 1.35 1.23  
Initial Bse: 0 2776 165 0 3591 184 101 199 104 57 401 51  
Added Vol: 0 47 -35 0 165 66 60 22 54 73 117 1  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2823 130 0 3756 250 161 221 158 130 518 52  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2881 132 0 3833 255 165 225 161 133 528 53  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2881 132 0 3833 255 165 225 161 133 528 53  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2881 132 0 3833 255 165 225 161 133 528 53  
Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.89 1.00 0.94 0.83 0.49 0.49 0.49 0.61 0.61  
Lanes: 0.00 2.86 0.14 0.00 3.00 1.00 0.60 0.82 0.58 0.37 1.48 0.15  
Final Sat.: 0 5056 233 0 5337 1583 560 765 549 429 1710 170  
Capacity Analysis Module:  
Vol/Sat: 0.00 0.57 0.57 0.00 0.72 0.16 0.29 0.29 0.29 0.31 0.31  
Crit Moves: 0.52 0.52 0.52 0.52 0.52 0.32 0.32 0.32 0.32 0.32 0.32  
Green/Cycle: 0.52 0.52 0.52 0.52 0.52 0.32 0.32 0.32 0.32 0.32 0.32  
Volume/Cap: 0.00 1.10 1.10 0.00 1.38 0.31 0.92 0.92 0.92 0.97 0.97  
Delay/Veh: 0.0 67.2 67.2 0.0 191 11.1 54.3 54.3 54.3 59.2 59.2  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 67.2 67.2 0.0 191 11.1 54.3 54.3 54.3 59.2 59.2  
LOS by Move: A E E A F B D D E E  
HCM2KavgQ: 0 45 42 0 88 3 12 12 12 16 16  
Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 2Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1170 19th / CrespiCycle (sec): 100 Critical Vol./Cap.(X): 0.872  
Loss Time (sec): 10 Average Delay (sec/veh): 69.9  
Optimal Cycle: 95 Level Of Service: EStreet Name: 19th Crespi  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Ignored Split Phase  
Rights: Include Ignore Include  
Min. Green: 59 59 0 0 64 64 21 0 21 0 0 0  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 3 0 0 0 0 2 1 0 1 0 1 0 0 0 0 0 0 0Volume Module:  
Base Vol: 0 2485 0 0 3081 99 147 0 97 0 0 0  
Growth Adj: 1.15 1.12 1.00 1.00 1.18 1.00 1.00 1.00 1.18 1.19 1.15  
Initial Bse: 0 2772 0 0 3631 117 147 0 97 0 0  
Added Vol: 0 99 0 0 219 74 -88 0 17 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2871 0 0 3850 191 59 0 114 0 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2329 0 0 3929 0 60 0 0 0 0  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2929 0 0 3929 0 60 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2929 0 0 3929 0 60 0 0 0 0Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 1.00 1.00 0.89 0.91 0.89 0.95 0.95 1.00 1.00  
Lanes: 0.00 3.00 0.00 0.00 3.00 0.00 3.00 0.00 0.00 0.00 0.00  
Final Sat: 0 5083 0 0 5083 0 0 0 0 0 0Capacity Analysis Module:  
Vol/Sat: 0.00 0.58 0.00 0.00 0.77 0.00 0.01 0.00 0.00 0.00 0.00  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.59 0.59 0.59 0.64 0.64 0.64 0.21 0.21 0.21 0.00 0.00  
Volume/Cap: 0.00 0.98 0.00 0.00 1.21 0.00 0.06 0.00 0.00 0.00 0.00  
Delay/Veh: 0.0 23.7 0.0 0.0 105 0.0 31.7 0.0 0.0 0.0 0.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 23.7 0.0 0.0 105 0.0 31.7 0.0 0.0 0.0 0.0  
LOS by Move: A C A A F A A A A A A  
HCM2kAvgQ: 0 38 0 0 72 0 1 0 0 0 0

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 2Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1181 Chumaseo / BrotherhooodCycle (sec): 100 Critical Vol./Cap.(X): 1.737  
Loss Time (sec): 12 Average Delay (sec/veh): 456.0  
Optimal Cycle: 180 Level Of Service: FStreet Name: Chumaseo Brotherhoood  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Protected Protected  
Rights: Include Include Include Include  
Min. Green: 20 20 20 20 20 20 20 20 48 48 48 48  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 1 0 0 0 0 0 1 0 0 1 0 1 0 1 0Volume Module:  
Base Vol: 12 5 32 75 4 12 39 1460 11 33 1613 236  
Growth Adj: 1.28 1.00 1.08 1.27 1.38 1.47 1.08 1.16 1.27 1.47 1.57 1.28  
Initial Bse: 15 5 34 95 6 18 42 1698 14 49 2532 302  
Added Vol: 0 0 0 255 0 -11 -23 249 0 0 386 618  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 15 5 34 350 6 7 19 1947 14 49 2918 920  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 16 5 35 358 6 7 19 1986 14 50 2977 939  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 16 5 35 358 6 7 19 1986 14 50 2977 939  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 16 5 35 358 6 7 19 1986 14 50 2977 939Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.71 0.71 0.89 0.53 0.53 0.53 0.93 0.93 0.93 0.93 0.90 0.90  
Lanes: 0.32 0.10 0.58 0.97 0.01 0.02 1.00 1.99 0.01 1.00 1.52 0.48  
Final Sat: 434 141 974 968 15 19 1769 3509 25 1769 2593 817Capacity Analysis Module:  
Vol/Sat: 0.04 0.04 0.04 0.37 0.37 0.37 0.01 0.57 0.57 0.03 1.15 1.15  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.48 0.48 0.20 0.48 0.48  
Volume/Cap: 0.18 0.18 0.18 1.85 1.85 1.85 0.05 1.18 1.18 0.14 2.39 2.39  
Delay/Veh: 34.5 34.5 34.5 439.3 439.3 439.3 32.6 108 107.8 33.8 649 649.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 34.5 34.5 34.5 439.3 439.3 439.3 32.6 108 107.8 33.8 649 649.0  
LOS by Move: C C C F F F C F C F C F  
HCM2kAvgQ: 1 1 2 33 33 0 54 54 1 209 209

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 2Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1190 Sunset / Taraval

Cycle (sec): 60 Critical Vol./Cap.(X): 0.960  
Loss Time (sec): 10 Average Delay (sec/veh): 125.6  
Optimal Cycle: 100 Level Of Service: F

Street Name: Sunset Taraval

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control:	Permitted Include	Permitted Include	Permitted Include	Permitted Include
Rights:	29 29 29 29 29 29 21 21 21 21 21 21	29 29 29 29 29 29 21 21 21 21 21 21	29 29 29 29 29 29 21 21 21 21 21 21	29 29 29 29 29 29 21 21 21 21 21 21
Min. Green:	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0
Y+R:	0 0 2 1 0 0 0 2 1 0 0 1 0 0 1 0 0 1 0	0 0 2 1 0 0 0 2 1 0 0 1 0 0 1 0 0 1 0	0 0 2 1 0 0 0 2 1 0 0 1 0 0 1 0 0 1 0	0 0 2 1 0 0 0 2 1 0 0 1 0 0 1 0 0 1 0
Lanes:	0 0 2 1 0 0 0 2 1 0 0 1 0 0 1 0 0 1 0	0 0 2 1 0 0 0 2 1 0 0 1 0 0 1 0 0 1 0	0 0 2 1 0 0 0 2 1 0 0 1 0 0 1 0 0 1 0	0 0 2 1 0 0 0 2 1 0 0 1 0 0 1 0 0 1 0

Volume Module:

Base Vol:	0 2129 96	0 1790 117	70 238 37	76 243 30
Growth Adj:	1.14 1.20 1.12	1.15 1.26 1.17	1.12 1.04 1.15	1.17 1.08 1.14
Initial Bse:	0 2553 108	0 2261 137	79 249 43	89 263 34
Added Vol:	0 483 0	0 513 0	0 0 0	0 0 0
PasserByVol:	0 0 0	0 0 0	0 0 0	0 0 0
Initial Fut:	0 3036 108	0 2774 137	79 249 43	89 263 34
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	0 3098 110	0 2831 140	80 254 44	91 268 35
Reduced Vol:	0 0 0	0 0 0	0 0 0	0 0 0
Reduced Vol:	0 3098 110	0 2831 140	80 254 44	91 268 35
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Final Volume:	0 3098 110	0 2831 140	80 254 44	91 268 35

Saturation Flow Module:

Sat/Lane:	1900 1900 1900	1900 1900 1900	1900 1900 1900	1900 1900 1900
Adjustment:	1.00 0.89 0.89	1.00 0.89 0.89	0.48 0.96 0.96	0.49 0.96 0.96
Lanes:	0.00 2.90 0.10	0.00 2.86 0.14	1.00 0.85 0.15	1.00 0.88 0.12
Final Sat:	0.4885 173	0.4810 238	916 1534 267	929 1619 211

Capacity Analysis Module:

Vol/Sat:	0.00 0.63 0.63	0.00 0.59 0.59	0.09 0.16 0.16	0.10 0.17 0.17
Crit Moves:	0.00 0.48 0.48	0.00 0.48 0.48	0.35 0.35 0.35	0.35 0.35 0.35
Green/Cycle:	0.00 1.31 1.31	0.00 1.22 1.22	0.25 0.47 0.47	0.28 0.47 0.47
Volume/Cap:	0.00 159 159.1	0.00 117 117.5	15.7 17.6 17.6	16.2 17.7 17.7
Delay/Veh:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	0.0 159 159.1	0.0 117 117.5	15.7 17.6 17.6	16.2 17.7 17.7
LOS by Move:	A F A F A F	A F A F A F	B B B B B B	B B B B B B
HCM2kAVGQ:	0 58 58	0 47 47	1 5 5	1 5 5

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 2Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1200 Sunset / Ocean

Cycle (sec): 60 Critical Vol./Cap.(X): 0.827  
Loss Time (sec): 9 Average Delay (sec/veh): 30.5  
Optimal Cycle: 63 Level Of Service: C

Street Name: Sunset Ocean

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control:	Permitted Include	Permitted Include	Permitted Include	Permitted Include
Rights:	31 31 31 31 31 31 19 19 19 19 19 19	31 31 31 31 31 31 19 19 19 19 19 19	31 31 31 31 31 31 19 19 19 19 19 19	31 31 31 31 31 31 19 19 19 19 19 19
Min. Green:	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0
Y+R:	0 0 2 1 0 0 0 1 1 0 0 1 0 0 1 0 0 1 0 1	0 0 2 1 0 0 0 1 1 0 0 1 0 0 1 0 0 1 0 1	0 0 2 1 0 0 0 1 1 0 0 1 0 0 1 0 0 1 0 1	0 0 2 1 0 0 0 1 1 0 0 1 0 0 1 0 0 1 0 1
Lanes:	0 0 2 1 0 0 0 1 1 0 0 1 0 0 1 0 0 1 0 1	0 0 2 1 0 0 0 1 1 0 0 1 0 0 1 0 0 1 0 1	0 0 2 1 0 0 0 1 1 0 0 1 0 0 1 0 0 1 0 1	0 0 2 1 0 0 0 1 1 0 0 1 0 0 1 0 0 1 0 1

Volume Module:

Base Vol:	0 1682 14	1 1588 60	30 61 18	37 47 226
Growth Adj:	1.11 1.24 1.10	1.00 1.00 1.00	1.10 1.00 1.00	1.00 1.00 1.00
Initial Bse:	0 2085 15	1 1589 60	33 61 18	37 47 252
Added Vol:	0 590 0	0 670 0	0 0 0	0 0 0
PasserByVol:	0 0 0	0 0 0	0 0 0	0 0 0
Initial Fut:	0 2675 15	1 2259 60	33 61 18	37 47 252
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	0 2729 16	1 2305 61	34 62 18	38 48 257
Reduced Vol:	0 0 0	0 0 0	0 0 0	0 0 0
Reduced Vol:	0 2729 16	1 2305 61	34 62 18	38 48 257
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Final Volume:	0 2729 16	1 2305 61	34 62 18	38 48 257

Saturation Flow Module:

Sat/Lane:	1900 1900 1900	1900 1900 1900	1900 1900 1900	1900 1900 1900
Adjustment:	1.00 0.89 0.89	0.79 0.79 0.79	0.88 0.88 0.88	0.76 0.98 0.83
Lanes:	0.00 2.98 0.02	0.01 2.92 0.07	0.30 0.54 0.16	1.00 1.00 1.00
Final Sat:	0.5049 29	2 4407 117	493 909 268	1450 1862 1593

Capacity Analysis Module:

Vol/Sat:	0.00 0.54 0.54	0.52 0.52 0.52	0.07 0.07 0.07	0.03 0.03 0.16
Crit Moves:	0.00 0.53 0.53	0.53 0.53 0.53	0.32 0.32 0.32	0.32 0.32 0.32
Green/Cycle:	0.00 1.01 1.01	0.98 0.98 0.98	0.22 0.22 0.22	0.08 0.08 0.51
Volume/Cap:	0.00 34.7 34.7	28.0 28.0 28.0	16.0 16.0 16.0	14.7 14.6 20.4
Delay/Veh:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	0.0 34.7 34.7	28.0 28.0 28.0	16.0 16.0 16.0	14.7 14.6 20.4
LOS by Move:	A C C C C C	B B B B B B	B B B B B B	B B B B B B
HCM2kAVGQ:	0 21 21	24 24 24	2 2 2	0 1 4

Note: Queue reported is the number of cars per lane.



19th Ave CS  
Tier 2

Level Of Service Computation Report  
2000 HCM 4-Way Stop Method (Future Volume Alternative)  
Intersection #1210 Skyline / Sloat / 39th  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.925  
Loss time (sec): 0 Average Delay (sec/veh): 29.4  
Optimal Cycle: 0 Level Of Service: D

Street Name: Skyline / 39th Sloat  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Stop Sign Stop Sign Stop Sign Stop Sign  
Rights: Ignore Include Ignore Include  
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0  
Lanes: 0 1 0 0 2 0 0 0 1 0 0 1 0 1 0 1 0

Volume Module:  
Base Vol: 327 0 565 0 21 7 2 350 163 450 435 64  
Growth Adj: 1.13 1.23 1.24 1.16 1.08 1.05 1.24 1.25 1.16 1.05 1.03 1.13  
Initial Bse: 371 0 701 0 23 7 2 437 189 475 450 73  
Added Vol: 0 0 3 0 0 0 0 0 43 0 2 35 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 371 0 704 0 23 7 2 480 189 477 485 73  
User Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.00 0.98 0.98 0.98 0.98 0.98 0.00 0.98 0.98 0.98  
PHF Volume: 378 0 0 23 8 3 489 0 486 495 74  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 378 0 0 23 8 3 489 0 486 495 74  
PCE Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00  
FinalVolume: 378 0 0 23 8 3 489 0 486 495 74

Saturation Flow Module:  
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Lanes: 1.00 0.00 2.00 0.00 0.75 0.25 0.01 1.99 1.00 2.00 1.74 0.26  
Final Sat: 409 0 912 0 286 93 4 771 406 839 785 119

Capacity Analysis Module:  
Vol/Sat: 0.92 xxxx 0.00 xxxx 0.08 0.08 0.63 0.63 0.00 0.58 0.63 0.62  
Crit Moves: \*\*\*\*  
Delay/Veh: 56.1 0.0 0.0 0.0 12.8 12.8 25.4 25.3 0.0 21.7 22.6 21.9  
Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 56.1 0.0 0.0 0.0 12.8 12.8 25.4 25.3 0.0 21.7 22.6 21.9  
LOS by Move: F \* \* B B D D \* C C C  
ApproachDel: 56.1 12.8 12.8 25.3 22.1  
Delay Adj: 1.00 1.00 1.00 1.00 1.00  
ApprAdjDel: 56.1 12.8 25.3 22.1  
LOS by Appr: F B D  
AllWayAvgD: 5.1 5.1 0.0 0.1 0.1 1.5 1.5 0.0 1.2 1.5 1.5

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 2

Level Of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)  
Intersection #1221 Skyline / Lake Merced (WBR)  
Average Delay (sec/veh): 2.5 Worst Case Level Of Service: C (17.5)

Street Name: Skyline  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign  
Rights: Include Include Include Include  
Lanes: 0 0 2 0 0 1 0 2 0 0 0 0 0 0 0 0 1

Volume Module:  
Base Vol: 0 853 0 100 489 0 0 0 0 0 0 0 133  
Growth Adj: 1.51 1.22 1.12 1.07 1.12 1.46 1.12 1.02 1.07 1.46 1.81 1.51  
Initial Bse: 0 1041 0 107 548 0 0 0 0 0 0 0 201  
Added Vol: 0 3 0 0 2 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 1044 0 107 550 0 0 0 0 0 0 0 201  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 1065 0 109 561 0 0 0 0 0 0 0 205  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
FinalVolume: 0 1065 0 109 561 0 0 0 0 0 0 0 205

Critical Gap Module:  
Critical Gap:xxxx xxxx xxxx 4.1 xxxx xxxx xxxx xxxx xxxx 6.9  
FollowUpTime:xxxx xxxx xxxx 2.2 xxxx xxxx xxxx xxxx xxxx 3.3  
Capacity Module:  
Conflict Vol: xxxx xxxx xxxx 1065 xxxx xxxx xxxx xxxx 532  
Potent Cap: xxxx xxxx xxxx 650 xxxx xxxx xxxx xxxx 492  
Move Cap: xxxx xxxx xxxx 650 xxxx xxxx xxxx xxxx 492  
Volume/Cap: xxxx xxxx xxxx 0.17 xxxx xxxx xxxx xxxx 0.42

Level Of Service Module:  
2Way95thQ: xxxx xxxx xxxx 0.6 xxxx xxxx xxxx xxxx 2.0  
Control Del:xxxx xxxx xxxx 11.7 xxxx xxxx xxxx xxxx 17.5  
LOS by Move: \* \* \* B \* \* \* \* \*  
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Shared Cap: xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx  
SharedQueue:xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx  
Shrd ConDel:xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx  
Shared LOS: \* \* \* \* \* \* \* \* \* \* \*  
ApproachDel: \* \* \* \* \* \* \* \* \* \* \*  
ApproachLOS: \* \* \* \* \* \* \* \* \* \* \*  
Note: Queue reported is the number of cars per lane.

Tier 2 PM Thu Feb 4, 2010 13:42:03 Page 27-1  
19th Ave CS  
Tier 2  
Level of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)  
Intersection #1230 Sunset / Lake Merced  
Average Delay (sec/veh): 7.4 Worst Case Level of Service: F[xxxxx]  
Street Name: Sunset Lake Merced  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign  
Rights: Ignore Ignore Ignore Ignore  
Lanes: 1 0 2 0 0 0 2 0 1 1 0 0 0 1 0 0 0  
Volume Module:  
Base Vol: 197 1777 0 0 1550 52 19 0 195 0 0 0  
Growth Adj: 1.48 1.29 1.19 1.26 1.43 1.55 1.19 1.09 1.26 1.55 1.68 1.48  
Initial Bse: 292 2284 0 0 2209 81 23 0 245 0 0 0  
Added Vol: 0 590 0 0 670 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 292 2874 0 0 2879 81 23 0 245 0 0 0  
User Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 0.00  
PHF Adj: 0.98 0.98 0.00 0.98 0.98 0.00 0.98 0.98 0.00 0.98 0.98 0.00  
PHF Volume: 298 2932 0 0 2938 0 23 0 0 0 0 0  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
FinalVolume: 298 2932 0 0 2938 0 23 0 0 0 0 0  
Critical Gap Module:  
Critical Gap: 4.1 xxxxx xxxxx xxxxx xxxxx 2.8 xxxxx 6.9 7.5 2.5 6.9  
FollowUpTIm: 2.2 xxxxx xxxxx xxxxx xxxxx 3.5 xxxxx 3.3 3.5 4.0 3.3  
Capacity Module:  
Conflict Vol: 2938 xxxxx xxxxx xxxxx xxxxx 5001 xxxxx 1469 4998 6467 1466  
Potent Cap.: 120 xxxxx xxxxx xxxxx xxxxx 98 xxxxx 117 0 68 117  
Move Cap.: 120 xxxxx xxxxx xxxxx xxxxx 0 xxxxx 117 0 0 117  
Volume/Cap: 2.49 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx 0.00 xxxxx xxxxx 0.00  
Level of Service Module:  
2Way95thQ: 26.5 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
Control Del: 753.0 xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
LOS by Move: F \* \* \* \* \*  
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Shared Cap.: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
SharedQueue: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
Shrd ConDel: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
Shared LOS: \* \* \* \* \*  
ApproachDel: xxxxxx +Inf xxxxxx  
ApproachLOS: \* \* \* \* \*  
Note: Queue reported is the number of cars per lane.

Tier 2 PM Thu Feb 4, 2010 13:42:03 Page 26-1  
19th Ave CS  
Tier 2  
Level of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)  
Intersection #1222 Skyline / Lake Merced (WBLT)  
Average Delay (sec/veh): 7.4 Worst Case Level of Service: F[118.6]  
Street Name: Skyline Lake Merced (WBLT)  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign  
Rights: Include Include Include Include  
Lanes: 1 0 1 1 0 0 0 2 0 1 0 0 0 0 1 0 1 0 0  
Volume Module:  
Base Vol: 8 853 118 0 468 21 0 0 0 75 3 0  
Growth Adj: 1.51 1.22 1.12 1.07 1.12 1.46 1.12 1.02 1.07 1.46 1.81 1.51  
Initial Bse: 12 1044 133 0 524 31 0 0 0 110 5 0  
Added Vol: 0 3 0 0 2 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 12 1047 133 0 526 31 0 0 0 110 5 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 12 1069 135 0 537 31 0 0 0 112 6 0  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
FinalVolume: 12 1069 135 0 537 31 0 0 0 112 6 0  
Critical Gap Module:  
Critical Gap: 4.1 xxxxx xxxxx xxxxx xxxxx xxxxx 6.8 6.5 xxxxx  
FollowUpTIm: 2.2 xxxxx xxxxx xxxxx xxxxx xxxxx 3.5 4.0 xxxxx  
Capacity Module:  
Conflict Vol: 568 xxxxx xxxxx xxxxx xxxxx 1429 1729 xxxxx  
Potent Cap.: 1000 xxxxx xxxxx xxxxx xxxxx 126 87 xxxxx  
Move Cap.: 1000 xxxxx xxxxx xxxxx xxxxx 124 86 xxxxx  
Volume/Cap: 0.01 xxxxx xxxxx xxxxx xxxxx xxxxx 0.90 0.06 xxxxx  
Level of Service Module:  
2Way95thQ: 0.0 xxxxx xxxxx xxxxx xxxxx xxxxx 5.7 0.2 xxxxx  
Control Del: 8.6 xxxxx xxxxx xxxxx xxxxx xxxxx 122.0 49.5 xxxxx  
LOS by Move: A \* \* \* \* \*  
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Shared Cap.: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
SharedQueue: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
Shrd ConDel: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
Shared LOS: \* \* \* \* \*  
ApproachDel: xxxxxx 118.6  
ApproachLOS: \* \* \* \* \*  
Note: Queue reported is the number of cars per lane.

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1240 Lake Merced / Winston

Cycle (sec): 90 Critical Vol./Cap.(X): 1.372  
Loss Time (sec): 9 Average Delay (sec/veh): 188.9  
Optimal Cycle: 180 Level of Service: F

Street Name: Lake Merced Winston

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Permitted	Protected	Split Phase	Split Phase
Rights:	WideBypass	Include	Include	Include
Min. Green:	34 34 34	17 55 55	0 0 0	25 25 25
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 2 1 0 2 0 2 0 0 0 0 0 2 0 0 1			

Volume Module:

Base Vol:	0 1747 404	204 1229	0 0 0	0 180 0	284
Growth Adj:	1.55 1.12 1.27	1.30 1.18 1.59	1.27 1.43	1.30 1.59 1.99	1.55
Initial Bse:	0 1948 514	266 1448	0 0 0	0 285 0	441
Added Vol:	0 315 251	210 460	0 0 0	0 352 0	275
PasserByVol:	0 0 0	0 0 0	0 0 0	0 0 0	0
Initial Fut:	0 2263 765	476 1908	0 0 0	0 637 0	716
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98
PHF Volume:	0 2310 780	485 1947	0 0 0	0 650 0	731
Reduced Vol:	0 0 0	0 0 0	0 0 0	0 0 0	0
Reduced Vol:	0 2310 780	485 1947	0 0 0	0 650 0	731
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00
Final Volume:	0 2310 780	485 1947	0 0 0	0 650 0	731

Saturation Flow Module:

Sat/Lane:	1900 1900	1900 1900	1900 1900	1900 1900	1900
Adjustment:	1.00 0.86 0.86	0.90 0.93 1.00	1.00 1.00 1.00	0.90 1.00 0.83	0.83
Lanes:	0.00 2.24 0.76	2.00 2.00 0.00	0.00 0.00 0.00	2.00 0.00 1.00	1.00
Final Sat.:	0 3655 1235	3432 3538	0 0 0	0 3432 0	1583

Capacity Analysis Module:

Vol/Sat:	0.00 0.63 0.63	0.14 0.55 0.00	0.00 0.00 0.00	0.00 0.19 0.00	0.46
Crit Moves:	0.38 0.38 0.38	0.19 0.62 0.62	0.00 0.00 0.00	0.28 0.28 0.28	0.28
Green/Cycle:	0.00 1.65 1.65	0.73 0.89 0.00	0.00 0.00 0.00	0.68 0.00 1.66	0.66
Volume/Cap:	0.00 320 319.5	40.8 13.9 0.0	0.0 0.0 0.0	32.9 0.0 340.5	1.00
Delay/Veh:	0.0 320 319.5	40.8 13.9 0.0	0.0 0.0 0.0	32.9 0.0 340.5	0.0
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00
AdjDel/Veh:	0.0 320 319.5	40.8 13.9 0.0	0.0 0.0 0.0	32.9 0.0 340.5	0.0
LOS by Move:	A F F	D B A	A A A	A C A	F
HCM2kAvgQ:	0 86 86	6 18 0	0 0 0	9 0 0	57

Note: Queue reported is the number of cars per lane.

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1250 Lake Merced / Font

Cycle (sec): 90 Critical Vol./Cap.(X): 1.643  
Loss Time (sec): 7 Average Delay (sec/veh): 209.4  
Optimal Cycle: 180 Level of Service: F

Street Name: Lake Merced Font

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Permitted	Protected	Split Phase	Split Phase
Rights:	Ignore	Include	Include	Include
Min. Green:	43 43 43	15 61 61	0 0 0	22 0 22
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 2 0 1 1 0 2 0 0 0 0 0 1 0 0 1			

Volume Module:

Base Vol:	0 1683 17	176 1644	0 0 0	0 104 0	331
Growth Adj:	1.08 1.12 1.10	1.13 1.18 1.11	1.10 1.08 1.13	1.11 1.04 1.08	1.08
Initial Bse:	0 1877 19	198 1937	0 0 0	0 115 0	357
Added Vol:	0 292 39	531 413	0 0 0	0 16 0	371
PasserByVol:	0 0 0	0 0 0	0 0 0	0 0 0	0
Initial Fut:	0 2169 58	729 2350	0 0 0	0 131 0	728
User Adj:	1.00 1.00 0.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00
PHF Adj:	0.98 0.98 0.00	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98
PHF Volume:	0 2213 0	744 2398	0 0 0	0 134 0	743
Reduced Vol:	0 0 0	0 0 0	0 0 0	0 0 0	0
Reduced Vol:	0 2213 0	744 2398	0 0 0	0 134 0	743
PCE Adj:	1.00 1.00 0.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00
MLF Adj:	1.00 1.00 0.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00
Final Volume:	0 2213 0	744 2398	0 0 0	0 134 0	743

Saturation Flow Module:

Sat/Lane:	1900 1900	1900 1900	1900 1900	1900 1900	1900
Adjustment:	1.00 0.93 1.00	0.93 0.93 1.00	1.00 1.00 1.00	0.93 1.00 0.83	0.83
Lanes:	0.00 2.00 1.00	1.00 2.00 0.00	0.00 0.00 0.00	1.00 0.00 1.00	1.00
Final Sat.:	0 3538 1900	1769 3538	0 0 0	0 1769 0	1583

Capacity Analysis Module:

Vol/Sat:	0.00 0.63 0.00	0.42 0.68 0.00	0.00 0.00 0.00	0.00 0.08 0.00	0.47
Crit Moves:	0.48 0.48 0.48	0.17 0.68 0.68	0.00 0.00 0.00	0.24 0.24 0.24	0.24
Green/Cycle:	0.00 1.31 0.00	2.52 1.00 0.00	0.00 0.00 0.00	0.31 0.00 1.92	1.92
Volume/Cap:	0.0 162 0.0	0.733 23.4 0.0	0.0 0.0 0.0	29.7 0.0 457.5	0.0
Delay/Veh:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00
AdjDel/Veh:	0.0 162 0.0	0.733 23.4 0.0	0.0 0.0 0.0	29.7 0.0 457.5	0.0
LOS by Move:	A F A	F C A	A A A	A C A	F
HCM2kAvgQ:	0 68 0	76 44 0	0 0 0	3 0 0	65

Note: Queue reported is the number of cars per lane.



19th Ave CS  
Tier 2Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1263 Lake Merced / Higuera

Cycle (sec): 90 Critical Vol./Cap.(X): 1.566  
 Loss Time (sec): 11 Average Delay (sec/veh): 226.5  
 Optimal Cycle: 180 Level Of Service: F

Street Name: Lake Merced Higuera

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Protected Split Phase Split Phase

Rights: Include Include Include Include

Min. Green: 41 41 11 59 59 0 0 0 20 0 20

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 1 0 1 0 2 0 0 0 0 0 1 0 0 0 1

Volume Module:

Base Vol: 0 1675 127 59 1717 0 0 0 102 0 57

Growth Adj: 1.88 1.12 1.16 1.19 1.18 1.91 1.16 1.20 1.19 1.91 2.64 1.88

Initial Bse: 0 1868 147 70 2023 0 0 0 195 0 107

Added Vol: 0 101 552 335 94 0 0 0 395 0 231

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 1969 699 405 2117 0 0 0 590 0 338

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 2009 713 413 2161 0 0 0 602 0 345

Reduced Vol: 0 0 0 0 0 0 0 0 602 0 345

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 0 2009 713 413 2161 0 0 0 602 0 345

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 1.00 0.89 0.89 0.93 0.93 1.00 1.00 1.00 1.00 0.83

Lanes: 0.00 1.48 0.52 1.00 2.00 0.00 0.00 0.00 0.00 1.00

Final Sat.: 0 2509 891 1769 3538 0 0 0 1769 0 1583

Capacity Analysis Module:

Vol/Sat: 0.00 0.80 0.80 0.23 0.61 0.00 0.00 0.00 0.00 0.34 0.00 0.22

Crit Moves: \*\*\*\*

Green/Cycle: 0.46 0.46 0.46 0.12 0.66 0.00 0.00 0.00 0.22 0.22

Volume/Cap: 0.00 1.76 1.76 1.91 0.93 0.00 0.00 0.00 1.53 0.00 0.98

Delay/Veh: 0.0 364 364.0 467.1 14.1 0.0 0.0 0.0 286.4 0.0 78.2

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 364 364.0 467.1 14.1 0.0 0.0 0.0 286.4 0.0 78.2

LOS by Move: A F F B A A A F A E

HCM2kAvgQ: 0 115 115 36 29 0 0 0 44 0 15

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 2Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1270 Lake Merced / Brotherhood

Cycle (sec): 107 Critical Vol./Cap.(X): 2.861  
 Loss Time (sec): 15 Average Delay (sec/veh): 213.0  
 Optimal Cycle: 180 Level Of Service: F

Street Name: Lake Merced Brotherhood

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Protected Split Phase Split Phase

Rights: WideByPass Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0

Lanes: 0 0 2 0 1 2 0 1 0 0 0 0 1 0 0 0 1

Volume Module:

Base Vol: 0 504 195 1342 517 0 0 0 267 0 1323

Growth Adj: 1.71 1.12 1.14 1.17 1.18 1.74 1.14 1.16 1.17 1.74 2.31 1.71

Initial Bse: 0 562 222 1572 609 0 0 0 465 0 2264

Added Vol: 0 339 -26 239 250 0 0 0 -13 0 313

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 901 196 1811 859 0 0 0 452 0 2577

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 920 200 1848 0 0 0 0 462 0 2629

Reduced Vol: 0 0 0 0 0 0 0 0 462 0 2629

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 0 920 200 1848 0 0 0 0 462 0 2629

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 1.00 0.93 0.83 0.90 1.00 1.00 1.00 1.00 0.93 1.00 0.83

Lanes: 0.00 2.00 1.00 2.00 1.00 0.00 0.00 0.00 1.00 0.00 1.00

Final Sat.: 0 3538 1583 3432 1900 0 0 0 1769 0 1583

Capacity Analysis Module:

Vol/Sat: 0.00 0.26 0.13 0.54 0.00 0.00 0.00 0.00 0.26 0.00 1.66

Crit Moves: \*\*\*\*

Green/Cycle: 0.21 0.21 0.21 0.43 0.68 0.00 0.00 0.00 0.22 0.22

Volume/Cap: 0.00 1.26 0.62 1.25 0.00 0.00 0.00 0.00 1.16 0.00 1.66

Delay/Veh: 0.0 172 47.1 145.5 0.0 0.0 0.0 0.0 139.2 0.0 300.4

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 172 47.1 145.5 0.0 0.0 0.0 0.0 139.2 0.0 300.4

LOS by Move: A F F A A A A F A F

HCM2kAvgQ: 0 31 7 57 0 0 0 0 26 0 133

Note: Queue reported is the number of cars per lane.

Tier 2 Conditions  
Weekend Midday Peak Hour

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1030 Junipero Serra / Sloat / West Portal / St. Francis  
Cycle (sec): 105 Critical Vol./Cap.(X): 1.183  
Loss Time (sec): 16 Average Delay (sec/veh): 172.9  
Optimal Cycle: 180 Level of Service: F

Street Name: Junipero Serra / West Portal Sloat / St. Francis									
Approach: North Bound South Bound East Bound West Bound									
Movement: L - T - R L - T - R L - T - R L - T - R									
Control:	Protected	Permitted	Split Phase		Split Phase	Include			
Rights:	Include	Include	Ignore		Ignore	Include			
Min. Green:	16 50 50	29 29 29	18 18 18	18 18 18	20 20 20	20			
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0			
Lanes:	3 0 1 1 0	0 0 2 1 0	3 0 1 0 1	0 1 0 1 0	0 1 0 1 0	0			

Volume Module:									
Base Vol:	1575 1246	23 0 787	272 895 346	371 14 293	26 1.13 1.12	1.10 1.13 1.18	1.16 1.10 1.08	1.13 1.16 1.15	1.13
Growth Adj:	1.13 1.12	1.10 1.13 1.18	1.16 1.10 1.08	1.13 1.16 1.15	1.13 25 0 927	316 984 375	420 16 336	29 0 0 0	0
Initial Bse:	1781 1390	0 0 261	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0
Added Vol:	92 212	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0
PasserByVol:	0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0
Initial Fut:	1873 1602	25 0 1188	316 986 375	508 16 336	29 1.00 1.00	1.00 1.00	1.00 1.00 1.00	1.00 1.00	1.00
User Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98	0.98
PHF Adj:	0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98	0.98
PHF Volume:	1912 1634	26 0 1213	323 1006 382	0 17 343	30 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00	1.00
Reduced Vol:	0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0
Reduced Vol:	1912 1634	26 0 1213	323 1006 382	0 17 343	30 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00	1.00
PCE Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00	1.00
MLF Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00	1.00
Final Volume:	1912 1634	26 0 1213	323 1006 382	0 17 343	30 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00	1.00

Saturation Flow Module:									
Sat/Lane:	1900 1900	1900 1900 1900	1900 1900 1900	1900 1900 1900	0.89 0.92	0.92 1.00 0.87	0.87 0.89 0.97	1.00 0.92 0.92	0.92
Adjustment:	0.89 0.92	0.92 1.00 0.87	0.87 0.89 0.97	1.00 0.92 0.92	0.92 3.00 1.97	0.03 0.00 2.37	0.63 3.00 1.00	1.00 0.09 1.76	0.15
Lanes:	3.00 1.97	0.03 0.00 2.37	0.63 3.00 1.00	1.00 0.09 1.76	1.00 5096 3441	54 0 3929	1046 5096 1843	1900 149 3071	269
Final Sat:	5096 3441	54 0 3929	1046 5096 1843	1900 149 3071	0.00 0.31	0.47 0.00 0.31	0.31 0.20 0.21	0.00 0.11 0.11	0.11
Capacity Analysis Module:	0.38 0.47	0.47 0.00 0.31	0.31 0.20 0.21	0.00 0.11 0.11	0.00 0.28	0.28 0.17 0.17	0.00 0.19 0.19	0.19 0.19 0.19	0.19
Vol/Sat:	0.38 0.47	0.47 0.00 0.31	0.31 0.20 0.21	0.00 0.11 0.11	0.00 0.00 0.12	0.00 0.00 0.12	0.00 0.00 0.12	0.00 0.00 0.12	0.00
Crit Moves:	0.00 0.12	0.00 0.00 0.12	0.00 0.00 0.12	0.00 0.00 0.12	0.00 0.00 0.12	0.00 0.00 0.12	0.00 0.00 0.12	0.00 0.00 0.12	0.00
Green/Cycle:	0.21 0.49	0.49 0.00 0.28	0.28 0.17 0.17	0.00 0.19 0.19	0.00 0.00 0.12	0.00 0.00 0.12	0.00 0.00 0.12	0.00 0.00 0.12	0.00
Volume/Cap:	1.79 0.98	0.98 0.00 1.12	1.12 1.15 1.21	0.00 0.59 0.59	0.00 0.00 0.12	0.00 0.00 0.12	0.00 0.00 0.12	0.00 0.00 0.12	0.00
Delay/Veh:	401.1 38.0	38.0 0.0 101.3	124.9 164 0.0	42.5 42.5 42.5	0.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00
User DelAdj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00
AdjDel/Veh:	401.1 38.0	38.0 0.0 101.3	124.9 164 0.0	42.5 42.5 42.5	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	0.00
LOS by Move:	F D D	F D D	F D D	F D D	F D D	F D D	F D D	F D D	F D D
HCM2kAvgQ:	56 29 29	0 29 29	20 23 0	7 7 7	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	0.00

Note: Queue reported is the number of cars per lane.

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1070 Junipero Serra / 19th  
Cycle (sec): 100 Critical Vol./Cap.(X): 1.855  
Loss Time (sec): 17 Average Delay (sec/veh): 273.9  
Optimal Cycle: 180 Level of Service: F

Street Name: Junipero Serra									
Approach: North Bound South Bound East Bound West Bound									
Movement: L - T - R L - T - R L - T - R L - T - R									
Control:	Split Phase	Split Phase	Split Phase		Split Phase	Permitted			
Rights:	Ignore	Ignore	Ignore		Ignore	Include			
Min. Green:	54 54 54	20 20 20	20 20 20	9 9 9	9 9 9	9			
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0			
Lanes:	2 1 0 1 0	0 1 2 1 0	0 0 1 0 3	1 0 0 1 0	0 0 1 0 0	0			

Volume Module:									
Base Vol:	2245 1828	70 0 1917	12 0 85 4216	28 48 36 1.09 1.12	1.06 1.09 1.18	1.12 1.06 1.01	1.09 1.12 1.06	1.09 1.09	1.09
Growth Adj:	1.09 1.12	1.06 1.09 1.18	1.12 1.06 1.01	1.09 1.12 1.06	1.13 74 0 2259	13 0 86 4610	31 51 39 0 0 0	0 0 0	0
Initial Bse:	2442 2039	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0
Added Vol:	135 137	1 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0
PasserByVol:	0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0
Initial Fut:	2577 2176	75 0 2290	13 0 127 4892	31 51 69 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00	1.00
User Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98	0.98
PHF Adj:	0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98	0.98
PHF Volume:	2629 2220	0 0 2337	0 0 129 4992	32 52 71 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00	1.00
Reduced Vol:	0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0
Reduced Vol:	2629 2220	0 0 2337	0 0 129 4992	32 52 71 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00	1.00
PCE Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00	1.00
MLF Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00	1.00
Final Volume:	2629 2220	0 0 2337	0 0 129 4992	32 52 71 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00	1.00

Saturation Flow Module:									
Sat/Lane:	1900 1900	1900 1900 1900	1900 1900 1900	1900 1900 1900	0.88 0.91	0.95 0.91 0.89	0.91 1.00 0.98	0.73 0.56 0.90	0.90
Adjustment:	0.88 0.91	0.95 0.91 0.89	0.91 1.00 0.98	0.73 0.56 0.90	0.00 2.20 1.80	0.00 0.00 4.00	0.00 0.00 1.00	3.00 1.00 0.42	0.58
Lanes:	3.00 1.80	0.00 0.00 4.00	0.00 0.00 1.00	3.00 1.00 0.42	1.00 3675 3103	0 0 6778	0 0 1862	4178 1065 721	980
Final Sat:	3675 3103	0 0 6778	0 0 1862	4178 1065 721	0.00 0.34	0.00 0.00 0.07	1.19 0.03 0.07	0.07 0.03 0.07	0.07
Capacity Analysis Module:	0.72 0.72	0.00 0.00 0.34	0.00 0.00 0.07	1.19 0.03 0.07	0.00 0.20	0.20 0.20 0.20	0.09 0.09 0.68	0.09 0.09 0.68	0.09
Vol/Sat:	0.72 0.72	0.00 0.00 0.34	0.00 0.00 0.07	1.19 0.03 0.07	0.00 0.00 0.17	0.00 0.00 0.17	0.00 0.00 0.17	0.00 0.00 0.17	0.00
Crit Moves:	0.00 0.17	0.00 0.00 0.17	0.00 0.00 0.17	0.00 0.00 0.17	0.00 0.00 0.17	0.00 0.00 0.17	0.00 0.00 0.17	0.00 0.00 0.17	0.00
Green/Cycle:	0.54 0.54	0.54 0.20 0.20	0.20 0.09 0.09	0.68 0.09 0.09	0.00 0.00 0.17	0.00 0.00 0.17	0.00 0.00 0.17	0.00 0.00 0.17	0.00
Volume/Cap:	1.32 1.32	0.00 0.00 1.72	0.00 0.00 0.72	0.72 0.33 0.80	0.00 0.00 0.17	0.00 0.00 0.17	0.00 0.00 0.17	0.00 0.00 0.17	0.00
Delay/Veh:	164.3 164	0.0 0.0 369	0.0 0.0 72.9	347.4 51.8 78.7	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00
User DelAdj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00
AdjDel/Veh:	164.3 164	0.0 0.0 369	0.0 0.0 72.9	347.4 51.8 78.7	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	0.00
LOS by Move:	F F F	F F F	F F F	F F F	F F F	F F F	F F F	F F F	F F F
HCM2kAvgQ:	78 78	0 0 52	0 0 6	157 1 6	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	0.00

Note: Queue reported is the number of cars per lane.



Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1110 19th / Sloat

Cycle (sec): 100 Critical Vol./Cap.(X): 1.579  
Loss Time (sec): 9 Average Delay (sec/veh): 118.7  
Optimal Cycle: 180 Level of Service: F

Street Name: 19th Sloat

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Permitted	Protected	Permit+Prot	Permitted
Rights:	Include	Include	Include	Include
Min. Green:	0 43 43	11 58 58	4 33 33	24 24 24
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 2 1 0	1 0 2 1 0	1 1 1 1 0	0 0 3 0 1

Volume Module:

Base Vol:	0 2032 83	275 2702	314	266 1157	123	0 1123	426
Growth Adj:	1.13 1.12 1.10	1.13 1.18	1.16	1.10 1.08	1.13	1.16 1.15	1.13
Initial Bse:	0 2266 91	311 3184	365	292 1253	139	0 1288	482
Added Vol:	0 242 2	27 234	8	9 60	0	0 62	37
PasserByVol:	0 0 0	0 0 0	0	0 0 0	0	0 0 0	0
Initial Fut:	0 2508 93	338 3418	373	301 1313	139	0 1350	519
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98	0.98	0.98 0.98	0.98	0.98 0.98	0.98
PHF Volume:	0 2559 95	345 3488	381	308 1340	142	0 1377	529
Reduced Vol:	0 0 0	0 0 0	0	0 0 0	0	0 0 0	0
Reduced Vol:	0 2559 95	345 3488	381	308 1340	142	0 1377	529
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00
FinalVolume:	0 2559 95	345 3488	381	308 1340	142	0 1377	529

Saturation Flow Module:

Sat/Lane:	1900 1900	1900 1900	1900	1900 1900	1900	1900 1900	1900
Adjustment:	1.00 0.89 0.89	0.93 0.88	0.88	0.62 0.87	0.87	1.00 0.89	0.83
Lanes:	0.00 2.89 0.11	1.00 2.70 0.30	1.00 2.71	0.29	0.00 3.00	1.00	1.00
Final Sat.:	0 4877 181	1769 4514	493	1169 4500	477	0 5083	1583

Capacity Analysis Module:												
Vol/Sat:	0.00	0.52	0.52	0.19	0.77	0.77	0.26	0.30	0.30	0.00	0.27	0.33
Crit Moves:												
Green/Cycle:	0.00	0.43	0.43	0.18	0.61	0.61	0.30	0.30	0.30	0.00	0.24	0.24
Volume/Cap:	0.00	1.22	1.22	1.06	1.26	1.26	1.12	1.00	1.00	0.00	1.13	1.39
Delay/Veh:	0.0	128	128.2	108.1	130	129.9	63.0	57.6	57.6	0.0	107	230.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	128	128.2	108.1	130	129.9	63.0	57.6	57.6	0.0	107	230.6
LOS by Move:												
A	F	F	F	F	F	F	E	E	E	A	F	F
HCMAvgQ:	0	49	49	18	80	80	19	23	23	0	26	36

Note: Queue reported is the number of cars per lane.

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1140 19th / Winston

Cycle (sec): 100 Critical Vol./Cap.(X): 1.714  
Loss Time (sec): 13 Average Delay (sec/veh): 182.6  
Optimal Cycle: 180 Level of Service: F

Street Name: 19th Winston

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Protected	Permitted	Permitted	Permitted
Rights:	Include	Include	AddLane	Include
Min. Green:	16 45 45	45 45 45	24 24 24	24 24 24
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	2 0 2 1 0	0 0 3 0 1	1 1 1 0 1	0 1 0 1 0

Volume Module:

Base Vol:	424 1667	58	0 2144	200	155 253	325	17 319	25
Growth Adj:	1.03 1.12	1.05	1.09 1.18	1.06	1.05 1.00	1.09	1.06 1.00	1.03
Initial Bse:	436 1859	61	0 2527	212	163 253	353	18 319	26
Added Vol:	164 71	0	0 130	118	131 444	170	25 419	0
PasserByVol:	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0
Initial Fut:	600 1930	61	0 2657	330	294 697	523	43 738	26
User Adj:	1.00 1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00
PHF Adj:	0.98 0.98 0.98	0.98	0.98 0.98	0.98	0.98 0.98	0.98	0.98 0.98	0.98
PHF Volume:	612 1970	62	0 2711	337	300 711	533	44 753	26
Reduced Vol:	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0
Reduced Vol:	612 1970	62	0 2711	337	300 711	533	44 753	26
PCE Adj:	1.00 1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00
MLF Adj:	1.00 1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00
FinalVolume:	612 1970	62	0 2711	337	300 711	533	44 753	26

Saturation Flow Module:

Sat/Lane:	1900 1900	1900	1900 1900	1900	1900 1900	1900	1900 1900	1900
Adjustment:	0.90 0.89 0.89	0.83	0.26 0.20	0.83	0.26 0.20	0.83	0.67 0.67	0.67
Lanes:	2.00 2.91 0.09	0.00 3.00	1.00	1.00 2.00	1.00	0.11 1.83	0.06	0.06
Final Sat.:	3432 4903	155	0 7625	1583	495 743	1583	136 2328	81

Capacity Analysis Module:

Vol/Sat:	0.18 0.40	0.40	0.00 0.36	0.21	0.61 0.96	0.34	0.32 0.32	0.32
Crit Moves:	0.16 0.44	0.44	0.44 0.44	0.44	0.27 0.27	0.27	0.27 0.27	0.27
Green/Cycle:	0.16 0.44	0.44	0.44 0.44	0.44	0.27 0.27	0.27	0.27 0.27	0.27
Volume/Cap:	1.11 0.91	0.91	0.00 0.81	0.48	2.29 3.61	1.27	1.22 1.22	1.22
Delay/Veh:	115.9 29.4	29.4	0.00 22.9	19.3	623.6 1221	176.6	149.0 149.0	149.0
User DelAdj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00
AdjDel/Veh:	115.9 29.4	29.4	0.00 22.9	19.3	623.6 1221	176.6	149.0 149.0	149.0
LOS by Move:	F C C	C A C	A C B	F F F	F F F	F F F	F F F	F F F
HCMAvgQ:	14 21	21	0 25	6	33 46	33	24 24	24

Note: Queue reported is the number of cars per lane.

Level of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)  
Intersection #150 19th / Buckingham

Average Delay (sec/veh): 3.1 Worst Case Level of Service: F [ 95.3 ]

Street Name: 19th North Bound South Bound East Bound West Bound Buckingham

Approach: L - T - R L - T - R L - T - R L - T - R

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign

Rights: Include Include Include Include

Lanes: 0 0 3 0 0 0 3 0 1 0 0 0 1 0 0 0 0

Volume Module:

Base Vol: 0 2149 0 0 2446 40 0 0 154 0 0 0

Growth Adj: 1.04 1.12 1.07 1.10 1.18 1.07 1.07 1.02 1.10 1.07 1.00 1.04

Initial Bse: 0 2397 0 0 2883 43 0 0 169 0 0 0

Added Vol: 0 235 0 0 299 26 0 0 28 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 2632 0 0 3182 69 0 0 197 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 2685 0 0 3247 70 0 0 201 0 0 0

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

FinalVolume: 0 2685 0 0 3247 70 0 0 201 0 0 0

Critical Gap Module:

Critical Gap: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 6.9 xxxxxx xxxxxx xxxxxx

FollowUpTim: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 3.3 xxxxxx xxxxxx xxxxxx

Capacity Module:

Conflict Vol: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 1082 xxxxxx xxxxxx xxxxxx

Potential Cap.: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 213 xxxxxx xxxxxx xxxxxx

Move Cap.: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 213 xxxxxx xxxxxx xxxxxx

Volume/Cap: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 0.95 xxxxxx xxxxxx xxxxxx

Level of Service Module:

2way/95thQ: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 8.0 xxxxxx xxxxxx xxxxxx

Control Del: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 95.3 xxxxxx xxxxxx xxxxxx

LOS by Move: LT - LTR - RT LT - LTR - RT LT - LTR - RT

Movement: Shared Cap.: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx

Shared Queue: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx

Shrd ConDel: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx

Shared LOS: \*

ApproachDel: xxxxxx 95.3 F

ApproachLOS: \*

Note: Queue reported is the number of cars per lane.

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #160 19th / Holloway

Cycle (sec): 100 Critical Vol./Cap.(X): 0.961

Loss Time (sec): 9 Average Delay (sec/veh): 41.8

Optimal Cycle: 148 Level of Service: D

Street Name: 19th North Bound South Bound East Bound West Bound Holloway

Approach: L - T - R L - T - R L - T - R L - T - R

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted

Rights: Include Include Include Include

Min. Green: 0 59 59 0 59 59 32 32 32 32

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 2 1 0 0 0 3 0 1 0 1 0 0 1 0 1 0

Volume Module:

Base Vol: 0 2096 105 0 2538 96 61 96 64 36 148 34

Growth Adj: 1.23 1.12 1.15 1.18 1.18 1.27 1.15 1.19 1.18 1.27 1.35 1.23

Initial Bse: 0 2338 121 0 2991 122 70 114 76 46 200 42

Added Vol: 0 183 31 0 267 60 51 29 104 118 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 2521 152 0 3258 182 121 164 105 150 318 42

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 2572 155 0 3325 185 124 168 107 153 325 43

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 2572 155 0 3325 185 124 168 107 153 325 43

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 0 2572 155 0 3325 185 124 168 107 153 325 43

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 1.00 0.88 0.88 1.00 0.89 0.83 0.55 0.55 0.55 0.62 0.62

Lanes: 0.00 2.83 0.17 0.00 3.00 1.00 0.62 0.84 0.54 0.59 1.25

Final Sat.: 0 4751 287 0 5083 1583 648 877 560 692 1473

Capacity Analysis Module:

Vol/Sat: 0.00 0.54 0.54 0.00 0.65 0.12 0.19 0.19 0.19 0.22 0.22

Crit Moves: \*\*\*\*

Green/Cycle: 0.00 0.59 0.59 0.00 0.59 0.59 0.32 0.32 0.32 0.32 0.32

Volume/Cap: 0.00 0.92 0.92 0.00 1.11 0.20 0.60 0.60 0.60 0.69 0.69

Delay/Veh: 0.0 16.8 16.8 0.0 66.6 6.2 32.5 32.5 32.5 34.8 34.8

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 16.8 16.8 0.0 66.6 6.2 32.5 32.5 32.5 34.8 34.8

LOS by Move: A B B A E A C C C C C

HCM2kAvgQ: 0 22 22 0 54 1 6 6 6 9 9

Note: Queue reported is the number of cars per lane.

Tier 2 WE Mon Jan 4, 2010 09:18:18 Page 31-1  
19th Ave CS  
Tier 2  
Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1270 Lake Merced / Brotherhood  
Cycle (sec): 107 Critical Vol./Cap.(X): 2.443  
Loss Time (sec): 15 Average Delay (sec/veh): 132.2  
Optimal Cycle: 180 Level Of Service: F  
Street Name: Lake Merced Brotherhood  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Protected Split Phase Split Phase  
Rights: WideBypass Include Include  
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
Y+R: 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0  
Lanes: 0 0 2 0 1 2 0 1 0 0 0 0 0 0 0 0 1  
Volume Module:  
Base Vol: 0 535 223 1076 498 0 0 0 0 216 0 1034  
Growth Adj: 1.71 1.12 1.14 1.17 1.18 1.74 1.14 1.16 1.17 1.74 2.31 1.71  
Initial Bse: 0 597 254 1260 587 0 0 0 0 376 0 1769  
Added Vol: 0 322 0 269 236 0 0 0 0 0 0 373  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 919 254 1529 823 0 0 0 0 376 0 2142  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 937 259 1560 0 0 0 0 384 0 2186  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 937 259 1560 0 0 0 0 384 0 2186  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 937 259 1560 0 0 0 0 384 0 2186  
Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.83 0.90 1.00 1.00 1.00 1.00 1.00 0.93 1.00 0.83  
Lanes: 0.00 2.00 1.00 2.00 1.00 0.00 0.00 0.00 0.00 1.00 0.00 1.00  
Final Sat.: 0 3538 1583 3432 1900 0 0 0 0 1769 0 1583  
Capacity Analysis Module:  
Vol/Sat: 0.00 0.26 0.16 0.45 0.00 0.00 0.00 0.00 0.00 0.22 0.00 1.38  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.21 0.21 0.21 0.43 0.68 0.00 0.00 0.00 0.00 0.22 0.22 1.00  
Volume/Cap: 0.00 1.29 0.80 1.06 0.00 0.00 0.00 0.00 0.00 0.97 0.00 1.38  
Delay/Veh: 0.0 183 58.5 66.5 0.0 0.0 0.0 0.0 0.0 79.0 0.0 175.5  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 183 58.5 66.5 0.0 0.0 0.0 0.0 0.0 79.0 0.0 175.5  
LOS by Move: A F E A A A A A E A F  
HCM2kAvgQ: 0 32 10 37 0 0 0 0 0 17 0 79  
Note: Queue reported is the number of cars per lane.  
Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES



Tier 3 Conditions  
Weekday AM Peak Hour

Scenario Report

Tier 3 AM

Command: Default Command  
Volume: Tier 2 AM  
Geometry: Tier 3 AM  
Impact Fee: Default Impact Fee  
Trip Generation: Projects AM  
Trip Distribution: AM  
Paths: Tier 2/3  
Routes: Tier 2/3  
Configuration: Existing

Impact Analysis Report  
Level Of Service

Intersection	Base		Del/	V/	Future		Change
	LOS	Veh	C	LOS	Veh	C	in
#1010 Claremont / Tataval / Dewey /	A	6.8	0.650	A	7.0	0.665	+ 0.015 V/C
#1020 Santa Clara / Portola / Vicent	C	29.7	0.837	D	40.2	0.960	+10.494 D/V
#1030 Junipero Serra / Sloat / West	F	90.5	1.076	F	96.9	1.094	+ 6.429 D/V
#1040 Junipero Serra / Ocean / Euca1	D	40.4	0.758	D	46.9	0.802	+ 6.482 D/V
#1050 Junipero Serra / Winston / Mer	C	34.6	0.632	D	38.3	0.772	+ 3.680 D/V
#1060 Junipero Serra / Holloway	C	32.7	0.675	D	36.9	0.716	+ 4.265 D/V
#1070 Junipero Serra / 19th	F	91.7	0.942	F	108.3	0.968	+16.664 D/V
#1075 Junipero Serra / Chumaseo	A	2.3	0.715	B	10.3	0.862	+ 8.047 D/V
#1080 Junipero Serra / I-280 NB On-R	D	40.2	0.788	D	40.5	0.800	+ 0.271 D/V
#1090 Junipero Serra / I-280 SB On-R	C	20.4	0.568	C	20.4	0.620	-0.007 D/V
#1100 19th / Taraval	C	25.5	0.815	C	28.9	0.829	+ 3.420 D/V
#1110 19th / Sloat	F	107.3	1.464	F	119.3	1.508	+11.977 D/V
#1120 19th / Ocean	D	41.4	1.084	D	46.1	1.093	+ 4.780 D/V
#1130 19th / Eucalyptus	C	21.0	0.831	C	23.1	0.865	+ 2.060 D/V
#1140 19th / Winston	D	50.0	0.977	F	84.1	1.322	+34.127 D/V
#1150 19th / Buckingham	F	57.6	0.679	F	77.7	0.826	+20.071 D/V
#1160 19th / Holloway	E	61.9	0.850	E	59.7	0.930	-2.282 D/V
#1170 19th / Crespi	D	54.5	0.762	E	64.7	0.752	+10.187 D/V
#1181 Chumaseo / Brotherhood	F	95.4	0.961	F	241.8	1.481	+146.420 D/
#1190 Sunset / Taraval	C	21.0	0.717	D	43.0	0.799	+21.964 D/V
#1200 Sunset / Ocean	B	12.0	0.605	B	13.7	0.664	+ 1.687 D/V
#1210 Skyline / Sloat / 39th	C	17.0	0.684	C	17.5	0.692	+ 0.009 V/C
#1221 Skyline / Lake Merced (WBR)	C	15.1	0.209	C	15.1	0.209	+ 0.010 D/V
#1222 Skyline / Lake Merced (WBLT)	F	52.5	0.379	F	52.8	0.381	+ 0.284 D/V

Intersection	Base		Future		Change in
	Del/ LOS	V/ Veh C	Del/ LOS	V/ Veh C	
#1230 Sunset / Lake Merced	F 154.0	0.594	F 425.0	1.103	+270.952 D/
#1240 Lake Merced / Winston	C 28.8	0.691	F 96.8	0.805	+68.066 D/V
#1250 Lake Merced / Font	E 61.6	0.746	F 171.6	1.471	+109.946 D/
#1263 Lake Merced / Higuera	F 95.7	0.778	F 140.7	1.202	+45.089 D/V
#1270 Lake Merced / Brotherhood	F 96.2	2.103	F 140.2	2.246	+43.951 D/V

Level Of Service Computation Report FHWA Roundabout Method (Future Volume Alternative)											
Intersection #1010 Claremont / Taraval / Dewey / Kensington											
Average Delay (sec/veh): 7.0 Level of Service: A											
Street Name: Claremont South Bound East Bound West Bound											
Approach: North Bound											
Movement: L - T - R L - T - R L - T - R L - T - R											
Control: Yield Sign Yield Sign Yield Sign Yield Sign											
Lanes: 1 1 1 1											
Volume Module:											
Base Vol:	3	7	221	10	60	37	1	231	27	313	337
Growth Adj:	1.03	1.02	1.02	1.02	1.03	1.03	1.02	1.01	1.02	1.03	1.04
Initial Bse:	3	7	224	10	61	38	1	233	27	323	351
Added Vol:	1	0	5	0	0	0	0	0	0	17	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	4	7	229	10	61	38	1	233	27	340	351
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	4	7	234	10	63	39	1	238	28	347	358
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	4	7	234	10	63	39	1	238	28	347	358
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	4	7	234	10	63	39	1	238	28	347	358
PCE Module:											
AutoPCE:	4	7	234	10	63	39	1	238	28	347	358
TruckPCE:	0	0	0	0	0	0	0	0	0	0	0
ComboPCE:	0	0	0	0	0	0	0	0	0	0	0
BicyclePCE:	0	0	0	0	0	0	0	0	0	0	0
AdjVolume:	4	7	234	10	63	39	1	238	28	347	358
Delay Module: >> Time Period: 0.25 hours <<											
CircVolume:	250	709									
MaxVolume:	1065	817									
PedVolume:	0	0									
AdjMaxVol:	1065	817									
ApproachVol:	246	112									
ApproachV/C:	0.23	0.14									
ApproachDel:	4.4	5.1									
ApproachLOS:	A	A									
Queue:	0.9	0.5									



Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1020 Santa Clara / Portola / Vicente

Cycle (sec): 80 Critical Vol./Cap. (X): 0.960  
Loss Time (sec): 11 Average Delay (sec/veh): 40.2  
Optimal Cycle: 124 Level of Service: D  
Street Name: Santa Clara / Vicente Portola  
Approach: North Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Protected Protected Protected  
Rights: Include Include Include Include  
Min. Green: 23 23 23 23 9 36 9 36 36  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 1 0 0 0 0 1 0 0 1 0 1 0 1 0

Volume Module:  
Base Vol: 18 264 86 82 202 30 24 1057 17 120 859 81  
Growth Adj: 1.05 1.04 1.09 1.12 1.10 1.08 1.09 1.13 1.12 1.08 1.05 1.05  
Initial Bse: 19 276 94 92 223 32 26 1197 19 129 903 85  
Added Vol: 0 0 26 0 0 4 0 131 0 0 79 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 19 276 94 118 223 36 26 1328 19 129 982 85  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 19 281 96 120 227 37 27 1355 19 132 1002 87  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 19 281 96 120 227 37 27 1355 19 132 1002 87  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Final Volume: 19 281 96 120 227 37 27 1355 19 132 1002 87

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.92 0.92 0.92 0.56 0.56 0.56 0.93 0.93 0.93 0.92 0.92  
Lanes: 0.05 0.71 0.24 0.31 0.59 0.10 1.00 1.97 0.03 1.00 1.84 0.16  
Final Sat.: 85 1248 424 330 625 102 1769 3481 50 1769 3217 278

Capacity Analysis Module:  
Vol/Sat: 0.23 0.23 0.23 0.36 0.36 0.36 0.02 0.39 0.39 0.07 0.31 0.31  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.30 0.30 0.30 0.30 0.30 0.11 0.45 0.45 0.11 0.45 0.45  
Volume/Cap: 0.75 0.75 0.75 1.21 1.21 1.21 0.13 0.87 0.87 0.66 0.69 0.69  
Delay/Veh: 34.8 34.8 34.8 149.4 149.4 149.4 33.4 26.4 26.4 50.1 20.1 20.1  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 34.8 34.8 34.8 149.4 149.4 149.4 33.4 26.4 26.4 50.1 20.1 20.1  
LOS by Move: C C C F F F C C C D C C  
HCM2kAVGQ: 11 11 11 21 21 21 1 19 19 4 12 12

Note: Queue reported is the number of cars per lane.

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1030 Junipero Serra / Sloat / West Portal / St. Francis

Cycle (sec): 105 Critical Vol./Cap. (X): 1.094  
Loss Time (sec): 16 Average Delay (sec/veh): 96.9  
Optimal Cycle: 180 Level of Service: F  
Street Name: Junipero Serra / West Portal Sloat / St. Francis  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Protected Protected Permitted Split Phase  
Rights: Include Include Ignore Include  
Min. Green: 16 48 48 27 27 27 20 20 20 20 20 20  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 3 0 1 1 0 0 0 2 1 0 3 0 1 0 1 0 1 0

Volume Module:  
Base Vol: 972 1137 20 0 1092 176 646 416 322 23 347 8  
Growth Adj: 1.16 1.14 1.16 1.14 1.09 1.14 1.16 1.19 1.14 1.14 1.19 1.16  
Initial Bse: 1129 1292 23 0 1192 200 750 494 367 26 412 9  
Added Vol: 22 110 0 0 53 0 2 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 1151 1402 23 0 1245 200 752 494 374 26 412 9  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 1174 1431 24 0 1271 205 768 504 0 27 420 9  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 1174 1431 24 0 1271 205 768 504 0 27 420 9  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Final Volume: 1174 1431 24 0 1271 205 768 504 0 27 420 9

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.89 0.92 0.92 1.00 0.88 0.88 0.89 0.97 1.00 0.93 0.93 0.93  
Lanes: 3.00 1.97 0.03 0.00 2.58 0.42 3.00 1.00 1.00 0.12 1.84 0.04  
Final Sat.: 5096 3438 57 0 4329 697 5096 1843 1900 206 3237 73

Capacity Analysis Module:  
Vol/Sat: 0.23 0.42 0.42 0.00 0.29 0.29 0.15 0.27 0.00 0.13 0.13 0.13  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.18 0.44 0.44 0.00 0.26 0.26 0.22 0.22 0.00 0.19 0.19 0.19  
Volume/Cap: 1.26 0.95 0.95 0.00 1.14 1.14 0.69 1.26 0.00 0.68 0.68 0.68  
Delay/Veh: 168.3 41.4 41.4 0.0 113 112.5 41.5 177 0.0 45.1 45.1 45.1  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 168.3 41.4 41.4 0.0 113 112.5 41.5 177 0.0 45.1 45.1 45.1  
LOS by Move: F D D A F D F A D D D  
HCM2kAVGQ: 23 23 23 0 29 29 9 31 0 8 8 8

Note: Queue reported is the number of cars per lane.

19th Ave CS

Tier 3

Level Of Service Computation Report  
 2000 HCM Operations Method (Future Volume Alternative)  
 Intersection #1040 Junipero Serra / Ocean / Eucalyptus  
 Cycle (sec): 100 Critical Vol./Cap.(X): 0.802  
 Loss Time (sec): 14 Average Delay (sec/veh): 46.9  
 Optimal Cycle: 100 Level Of Service: D

Street Name: Junipero Serra Ocean / Eucalyptus  
 Approach: North Bound East Bound West Bound  
 Movement: L - T - R L - T - R L - T - R L - T - R  
 Control: Protected Protected Protected Permitted Permitted Permitted  
 Rights: Include Include Include Ovl Ovl Ovl  
 Min. Green: 11 43 43 16 48 48 27 27 27 27 27 27  
 Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
 Lanes: 1 0 2 1 0 2 0 2 1 0 0 1 0 1 0 1 0 1 0 1

Volume Module:  
 Base Vol: 189 1678 46 326 1061 90 85 384 45 54 368 324  
 Growth Adj: 1.16 1.14 1.16 1.14 1.19 1.14 1.16 1.19 1.14 1.14 1.19 1.16  
 Initial Bse: 220 1907 53 371 1159 103 99 456 51 62 437 376  
 Added Vol: 0 107 4 14 42 4 2 16 0 1 33 23  
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
 Initial Fut: 220 2014 57 385 1201 107 101 472 51 63 470 399  
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
 PHF Volume: 224 2055 59 393 1225 109 103 481 52 64 479 407  
 Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
 Reduced Vol: 224 2055 59 393 1225 109 103 481 52 64 479 407  
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 FinalVolume: 224 2055 59 393 1225 109 103 481 52 64 479 407

Saturation Flow Module:  
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
 Adjustment: 0.92 0.88 0.88 0.91 0.89 0.89 0.60 0.60 0.83 0.96 0.96 0.83  
 Lanes: 1.00 2.92 0.08 2.00 2.76 0.24 0.35 1.65 1.00 0.12 0.88 1.00  
 Final Sat.: 1751 4873 139 3466 4659 413 403 1889 1583 214 1605 1583

Capacity Analysis Module:  
 Vol/Sat: 0.13 0.42 0.42 0.11 0.26 0.26 0.25 0.25 0.03 0.30 0.30 0.26  
 Crit Moves: \*\*\*\*  
 Green/Cycle: 0.11 0.43 0.43 0.16 0.48 0.48 0.27 0.27 0.38 0.27 0.27 0.43  
 Volume/Cap: 1.16 0.98 0.98 0.71 0.55 0.55 0.94 0.94 0.09 1.11 1.11 0.60  
 Delay/Veh: 160.1 39.5 39.5 47.3 15.5 15.5 60.4 60.4 20.2 109.2 109 25.7  
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 AdjDel/Veh: 160.1 39.5 39.5 47.3 15.5 15.5 60.4 60.4 20.2 109.2 109 25.7  
 LOS by Move: F D D D B B E E C F F C  
 HCM2kAvgQ: 10 23 23 5 8 8 14 14 1 27 27 10

Note: Queue reported is the number of cars per lane.

19th Ave CS

Tier 3

Level Of Service Computation Report  
 2000 HCM Operations Method (Future Volume Alternative)  
 Intersection #1050 Junipero Serra / Winston / Mercedes  
 Cycle (sec): 100 Critical Vol./Cap.(X): 0.772  
 Loss Time (sec): 14 Average Delay (sec/veh): 38.3  
 Optimal Cycle: 100 Level Of Service: D

Street Name: Junipero Serra Winston / Mercedes  
 Approach: North Bound East Bound West Bound  
 Movement: L - T - R L - T - R L - T - R L - T - R  
 Control: Protected Protected Protected Permitted Permitted Permitted  
 Rights: Include Include Include Include Include  
 Min. Green: 19 40 40 19 40 40 27 27 27 27 27 27  
 Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
 Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 0 1 0 1 0 1 0 1

Volume Module:  
 Base Vol: 186 1681 29 103 1024 72 80 63 73 64 147 62  
 Growth Adj: 1.07 1.14 1.16 1.14 1.09 1.05 1.16 1.19 1.14 1.05 1.00 1.07  
 Initial Bse: 199 1911 34 117 1118 75 93 75 83 67 147 66  
 Added Vol: 56 38 4 1 -24 65 73 48 29 -6 82 0  
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
 Initial Fut: 255 1949 38 118 1094 140 166 123 112 61 229 66  
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
 PHF Volume: 260 1988 38 121 1117 143 169 125 115 62 234 68  
 Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
 Reduced Vol: 260 1988 38 121 1117 143 169 125 115 62 234 68  
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 FinalVolume: 260 1988 38 121 1117 143 169 125 115 62 234 68

Saturation Flow Module:  
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
 Adjustment: 0.93 0.89 0.89 0.93 0.88 0.88 0.46 0.98 0.83 0.84 0.98 0.83  
 Lanes: 1.00 2.94 0.06 1.00 2.66 0.34 1.00 1.00 1.00 1.00 1.00 1.00  
 Final Sat.: 1769 4972 96 1769 4429 568 868 1862 1583 1216 1862 1583

Capacity Analysis Module:  
 Vol/Sat: 0.15 0.40 0.40 0.07 0.25 0.25 0.20 0.07 0.07 0.05 0.13 0.04  
 Crit Moves: \*\*\*\*  
 Green/Cycle: 0.19 0.40 0.40 0.19 0.40 0.40 0.27 0.27 0.27 0.27 0.27 0.27  
 Volume/Cap: 0.77 1.00 1.00 0.36 0.63 0.63 0.72 0.25 0.27 0.19 0.46 0.16  
 Delay/Veh: 54.3 46.8 46.8 38.2 23.0 23.0 50.7 29.8 30.3 29.4 33.5 28.6  
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 AdjDel/Veh: 54.3 46.8 46.8 38.2 23.0 23.0 50.7 29.8 30.3 29.4 33.5 28.6  
 LOS by Move: D D D D C C D C C C C C  
 HCM2kAvgQ: 7 25 25 3 10 10 4 3 3 2 6 2

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 3

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1060 Junipero Serra / Holloway  
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.716  
Loss Time (sec): 14 Average Delay (sec/veh): 36.9  
Optimal Cycle: 100 Level Of Service: D

Street Name: Junipero Serra Holloway  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Protected Protected Protected Protected Permitted Permitted  
Rights: Include Include Include Include Include Include  
Min. Green: 19 39 39 19 39 39 28 28 28 28 28 28  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 0 1 0 1

Volume Module:  
Base Vol: 234 1520 60 114 956 84 163 106 16 162 129 118  
Growth Adj: 1.08 1.14 1.07 1.05 1.09 1.06 1.07 1.01 1.05 1.06 1.02 1.08  
Initial Bse: 253 1728 64 120 1044 89 175 107 17 171 132 128  
Added Vol: 63 59 2 12 5 -18 25 -12 0 -6 -12 14  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 316 1787 66 132 1049 71 200 95 17 165 120 142  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 322 1823 68 135 1070 72 204 97 17 169 123 144  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 322 1823 68 135 1070 72 204 97 17 169 123 144

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.93 0.89 0.89 0.93 0.88 0.88 0.65 0.98 0.83 0.68 0.98 0.83  
Lanes: 1.00 2.89 0.11 1.00 2.81 0.19 1.00 1.00 1.00 1.00 1.00 1.00  
Final Sat: 1769 4877 181 1769 4719 319 1227 1862 1583 1289 1862 1583

Capacity Analysis Module:  
Vol/Sat: 0.18 0.37 0.37 0.08 0.23 0.23 0.17 0.05 0.01 0.13 0.07 0.09  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.19 0.39 0.39 0.19 0.39 0.39 0.28 0.28 0.28 0.28 0.28 0.28  
Volume/Cap: 0.96 0.96 0.96 0.40 0.58 0.58 0.59 0.19 0.04 0.47 0.24 0.33  
Delay/Veh: 79.9 39.5 39.5 39.0 23.0 23.0 38.5 28.1 26.4 34.1 28.8 30.5  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 79.9 39.5 39.5 39.0 23.0 23.0 38.5 28.1 26.4 34.1 28.8 30.5  
LOS by Move: E D D D C C C C C C C C C C  
HCM2kAvgQ: 10 20 20 3 9 9 6 2 0 5 3 4  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 3

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1070 Junipero Serra / 19th  
\*\*\*\*\*

Cycle (sec): 90 Critical Vol./Cap.(X): 0.968  
Loss Time (sec): 0 Average Delay (sec/veh): 108.3  
Optimal Cycle: 180 Level Of Service: F

Street Name: Junipero Serra 19th  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Split Phase Split Phase Split Phase Permitted Permitted  
Rights: Include Include Ignore Ovl Include Include  
Min. Green: 46 46 46 18 18 18 9 9 9 9 9 9  
Y+R: 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0  
Lanes: 2 1 0 1 0 0 1 2 1 0 0 0 1 0 3 1 0 0 1 0

Volume Module:  
Base Vol: 2208 1679 8 0 1210 4 0 71 3047 32 56 62  
Growth Adj: 1.13 1.14 1.12 1.10 1.09 1.11 1.12 1.10 1.10 1.11 1.12 1.13  
Initial Bse: 2494 1908 9 0 1321 4 0 78 3345 35 63 70  
Added Vol: 61 108 3 0 -1 0 0 21 119 0 0 15  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 2555 2016 12 0 1320 4 0 99 3464 35 63 85  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 2607 2058 12 0 1347 0 0 101 3535 36 64 87  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 2607 2058 12 0 1347 0 0 101 3535 36 64 87

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.97 0.91 0.91 0.91 0.89 0.91 1.00 0.98 0.81 0.44 0.90 0.90  
Lanes: 2.17 1.82 0.01 0.00 4.00 0.00 0.00 1.00 3.00 1.00 0.43 0.57  
Final Sat: 3977 3139 19 0 6778 0 0 1862 4596 827 723 979

Capacity Analysis Module:  
Vol/Sat: 0.66 0.66 0.66 0.00 0.20 0.00 0.00 0.05 0.77 0.04 0.09 0.09  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.51 0.51 0.51 0.20 0.20 0.20 0.10 0.10 0.67 0.10 0.10 0.10  
Volume/Cap: 1.29 1.29 1.29 0.00 0.99 0.00 0.00 0.54 1.15 0.44 0.89 0.89  
Delay/Veh: 147.1 147 147.1 0.0 59.0 0.0 0.0 49.5 79.0 54.0 84.3 84.3  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 147.1 147 147.1 0.0 59.0 0.0 0.0 49.5 79.0 54.0 84.3 84.3  
LOS by Move: F F F A E A A D E D F F  
HCM2kAvgQ: 71 65 65 0 14 0 0 3 62 2 7 7  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.



19th Ave CS

Tier 3

## Level Of Service Computation Report

## 2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1080 Junipero Serra / I-280 NB On-Ramp / John Daly

\*\*\*\*\*

Cycle (sec): 125 Critical Vol./Cap.(X): 0.800

Loss Time (sec): 12 Average Delay (sec/veh): 40.5

Optimal Cycle: 82 Level Of Service: D

\*\*\*\*\*

Street Name: Junipero Serra / I-280 NB On-Ramp John Daly

Approach: North Bound South Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

\*\*\*\*\*

Control: Split Phase Split Phase Split Phase Split Phase

Rights: Ovl Include Ovl

Min. Green: 6 6 6 6 31 31 31 6 6 6 6

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 2 0 1 1 1 0 0 1 1 2 1 0 1

\*\*\*\*\*

Volume Module:

Base Vol: 337 335 364 104 169 262 665 779 99 59 746 303

Growth Adj: 1.05 1.12 1.14 1.00 1.00 1.00 1.14 1.16 1.00 1.00 1.00 1.05

Initial Bse: 354 374 414 104 169 262 756 902 99 59 746 318

Added Vol: 73 21 0 0 0 0 1 11 201 0 0 7

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 427 395 414 104 169 262 757 913 300 59 746 325

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 435 403 422 106 172 267 773 931 306 60 761 332

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 435 403 422 106 172 267 773 931 306 60 761 332

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Volume: 435 403 422 106 172 267 773 931 306 60 761 332

\*\*\*\*\*

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adj/Adj: 0.90 0.86 0.86 0.93 0.89 0.89 0.87 0.89 0.89 0.89 0.89 0.83

Lanes: 2.00 1.47 1.53 1.00 0.78 1.22 2.00 2.00 1.00 1.00 3.00 1.00

Final Sat: 3432 2392 2506 1769 1327 2058 3289 3391 1695 1688 5063 1583

\*\*\*\*\*

Capacity Analysis Module:

Vol/Sat: 0.13 0.17 0.17 0.06 0.13 0.13 0.23 0.27 0.18 0.04 0.15 0.21

Crit Moves: \*\*\*\*

Green/Cycle: 0.21 0.21 0.40 0.16 0.16 0.51 0.34 0.34 0.34 0.19 0.19 0.35

Volume/Cap: 0.60 0.80 0.42 0.37 0.80 0.26 0.68 0.80 0.53 0.19 0.80 0.60

Delay/Veh: 46.0 51.4 27.3 47.5 58.6 17.6 35.9 39.1 33.0 42.8 53.1 35.2

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 46.0 51.4 27.3 47.5 58.6 17.6 35.9 39.1 33.0 42.8 53.1 35.2

LOS by Move: D D C D E B D D C D D D

HCM2kAvgQ: 8 13 8 4 10 5 13 17 9 2 12 11

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS

Tier 3

## Level Of Service Computation Report

## 2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1080 Junipero Serra / I-280 SB On-Ramp / John Daly

\*\*\*\*\*

Cycle (sec): 120 Critical Vol./Cap.(X): 0.620

Loss Time (sec): 8 Average Delay (sec/veh): 20.4

Optimal Cycle: 41 Level Of Service: C

\*\*\*\*\*

Street Name: Junipero Serra / I-280 SB On-Ramp John Daly

Approach: North Bound South Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

\*\*\*\*\*

Control: Split Phase Split Phase Split Phase Split Phase

Rights: Ovl Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 0 0 2 0 0 0 0 0 0 2 0 2 0 0 0

\*\*\*\*\*

Volume Module:

Base Vol: 0 0 316 0 0 0 0 0 1227 419 499 1001

Growth Adj: 1.02 1.00 1.01 1.13 1.23 1.13 1.01 1.03 1.13 1.13 1.03 1.02

Initial Bse: 0 0 320 0 0 0 0 0 1261 472 564 1035

Added Vol: 0 0 23 0 0 0 0 0 190 47 0 73

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 0 343 0 0 0 0 0 1451 519 564 1108

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 0 350 0 0 0 0 0 1480 530 575 0

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 0 350 0 0 0 0 0 1480 530 575 0

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Volume: 0 0 350 0 0 0 0 0 1480 530 575 0

\*\*\*\*\*

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adj/Adj: 1.00 1.00 0.73 1.00 1.00 1.00 1.00 0.86 0.86 0.90 0.95 1.00

Lanes: 0.00 0.00 2.00 0.00 0.00 0.00 0.00 2.21 0.79 2.00 2.00 0.00

Final Sat: 0 0 2786 0 0 0 0 3598 1287 3432 3610 0

\*\*\*\*\*

Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.13 0.00 0.00 0.00 0.00 0.41 0.41 0.17 0.00 0.00

Crit Moves: \*\*\*\*

Green/Cycle: 0.00 0.00 0.27 0.00 0.00 0.00 0.00 0.66 0.66 0.27 0.00 0.00

Volume/Cap: 0.00 0.00 0.47 0.00 0.00 0.00 0.00 0.62 0.62 0.62 0.00 0.00

Delay/Veh: 0.0 0.0 37.0 0.0 0.0 0.0 0.0 11.9 11.9 39.7 0.0 0.0

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 0.0 37.0 0.0 0.0 0.0 0.0 11.9 11.9 39.7 0.0 0.0

LOS by Move: A A D A A A A B D A A

HCM2kAvgQ: 0 0 6 0 0 0 0 16 16 9 0 0

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

Tier 3 AM	Mon Jan 4, 2010 09:20:20	Page 13-1
-----		
19th Ave CS		
Tier 3		
-----		
Level Of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
*****		
Intersection #1100 19th / Taraval		
*****		
Cycle (sec):	90	Critical Vol./Cap.(X): 0.829
Loss Time (sec):	10	Average Delay (sec/veh): 28.9
Optimal Cycle:	89	Level Of Service: C
*****		
Street Name: 19th		
Approach:	North Bound	East Bound
Movement:	L - T - R	L - T - R
-----		
Control:	Permitted	Permitted
Rights:	Include	Include
Min. Green:	56 56 56	23 23 23
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 2 1 0	0 1 0 1 0
-----		
Volume Module:		
Base Vol:	0 2276 57	2 2656 58
Growth Adj:	1.10 1.14 1.06	1.04 1.09 1.08
Initial Bse:	0 2387 61	2 2900 63
Added Vol:	0 146 3	0 60 0
PasserByVol:	0 0 0	0 0 0
Initial Fut:	0 2733 64	2 2960 63
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	0 2789 65	2 3021 64
Reduc Vol:	0 0 0	0 0 0
Reduced Vol:	0 2789 65	2 3021 64
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00
FinalVolume:	0 2789 65	2 3021 64
-----		
Saturation Flow Module:		
Sat/Lane:	1900 1900	1900 1900
Adjustment:	1.00 0.89 0.89	0.84 0.84 0.84
Lanes:	0.00 2.93 0.07	0.01 2.93 0.06
Final Sat.:	0 4953 115	3 4662 99
-----		
Capacity Analysis Module:		
Vol/Sat:	0.00 0.56 0.56	0.65 0.65 0.65
Crit Moves:	0.00 0.63 0.63	0.63 0.63 0.63
Green/Cycle:	0.00 0.89 0.89	1.02 1.02 1.02
Volume/Cap:	0.00 18.0 18.0	39.1 39.1 39.1
Delay/Veh:	1.00 1.00 1.00	1.00 1.00 1.00
User DelAdj:	0.0 18.0 18.0	39.1 39.1 39.1
AdjDel/Veh:	0.0 18.0 18.0	39.1 39.1 39.1
LOS by Move:	A B B	D D D
HCM2kAvgQ:	0 28 28	42 42 42
-----		
Note: Queue reported is the number of cars per lane.		
-----		
Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES		

Tier 3 AM	Mon Jan 4, 2010 09:20:20	Page 14-1
-----		
19th Ave CS		
Tier 3		
-----		
Level Of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
*****		
Intersection #1110 19th / Sloat		
*****		
Cycle (sec):	90	Critical Vol./Cap.(X): 1.508
Loss Time (sec):	9	Average Delay (sec/veh): 119.3
Optimal Cycle:	180	Level Of Service: F
*****		
Street Name: 19th		
Approach:	North Bound	East Bound
Movement:	L - T - R	L - T - R
-----		
Control:	Permitted	Permitted
Rights:	Include	Include
Min. Green:	33 33 33	12 49 49
Y+R:	10.0 10.0 10.0	10.0 10.0 10.0
Lanes:	0 0 2 1 0	1 0 2 1 0
-----		
Volume Module:		
Base Vol:	0 1964 25	312 2778 127
Growth Adj:	1.16 1.14 1.16	1.14 1.09 1.14
Initial Bse:	0 2232 29	355 3034 145
Added Vol:	0 110 2	4 35 5
PasserByVol:	0 0 0	0 0 0
Initial Fut:	0 2342 31	359 3069 150
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	0 2390 32	367 3131 153
Reduc Vol:	0 0 0	0 0 0
Reduced Vol:	0 2390 32	367 3131 153
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00
FinalVolume:	0 2390 32	367 3131 153
-----		
Saturation Flow Module:		
Sat/Lane:	1900 1900	1900 1900
Adjustment:	1.00 0.89 0.89	0.93 0.89 0.89
Lanes:	0.00 2.96 0.04	1.00 2.86 0.14
Final Sat.:	0 5007 66	1769 4813 235
-----		
Capacity Analysis Module:		
Vol/Sat:	0.00 0.48 0.48	0.21 0.65 0.65
Crit Moves:	0.00 0.37 0.37	0.15 0.52 0.52
Green/Cycle:	0.00 1.30 1.30	1.39 1.26 1.26
Volume/Cap:	0.0 166 166.3	237.4 137 137.5
Delay/Veh:	1.00 1.00 1.00	1.00 1.00 1.00
User DelAdj:	0.0 166 166.3	237.4 137 137.5
AdjDel/Veh:	0.0 166 166.3	237.4 137 137.5
LOS by Move:	A F F	F F F
HCM2kAvgQ:	0 49 49	25 66 66
-----		
Note: Queue reported is the number of cars per lane.		
-----		
Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES		







19th Ave CS  
Tier 3

Level Of Service Computation Report  
2000 HCM Operations Method [Future Volume Alternative]  
\*\*\*\*\*  
Intersection #1160 19th / Holloway  
\*\*\*\*\*  
Cycle (sec): 90 Critical Vol./Cap.(X): 0.930  
Loss Time (sec): 9 Average Delay (sec/veh): 59.7  
Optimal Cycle: 114 Level Of Service: E  
\*\*\*\*\*

Street Name: 19th Holloway  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 48 48 48 48 33 33 33 33  
Y+R: 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0  
Lanes: 0 0 2 1 0 0 0 3 0 1 0 1 0 1 0 1 0

Volume Module:  
Base Vol: 0 2288 130 0 3078 138 56 143 55 37 370 50  
Growth Adj: 1.07 1.14 1.18 1.16 1.23 1.16 1.05 1.00 1.07  
Initial Bse: 0 2601 154 0 3361 144 66 176 64 39 370 53  
Added Vol: 0 29 -21 0 -22 22 66 34 85 -4 37 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2630 133 0 3339 166 132 210 149 35 407 53  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2683 135 0 3407 170 135 214 152 35 415 54  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2683 135 0 3407 170 135 214 152 35 415 54  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2683 135 0 3407 170 135 214 152 35 415 54

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 1.00 0.98 0.83 0.58 0.58 0.81 0.81 0.81  
Lanes: 0.00 2.86 0.14 0.00 3.00 1.00 0.54 0.85 0.61 0.14 1.64 0.22  
Final Sat.: 0 4805 242 0 5592 1583 593 940 667 216 2533 332

Capacity Analysis Module:  
Vol/Sat: 0.00 0.56 0.56 0.00 0.61 0.11 0.23 0.23 0.23 0.16 0.16 0.16  
Crit Moves: \*\*\*\*\*  
Green/Cycle: 0.00 0.53 0.53 0.00 0.53 0.53 0.37 0.37 0.37 0.37 0.37 0.37  
Volume/Cap: 0.00 1.05 1.05 0.00 1.14 0.20 0.62 0.62 0.62 0.45 0.45 0.45  
Delay/Veh: 0.0 46.2 46.2 0.0 83.6 8.3 26.9 26.9 26.9 22.9 22.9 22.9  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 46.2 46.2 0.0 83.6 8.3 26.9 26.9 26.9 22.9 22.9 22.9  
LOS by Move: A D D A F A C C C C C C  
HCM2kAvgQ: 0 34 34 0 52 1 7 7 7 6 6 6

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 3

Level Of Service Computation Report  
2000 HCM Operations Method [Future Volume Alternative]  
\*\*\*\*\*  
Intersection #1170 19th / Crespi  
\*\*\*\*\*  
Cycle (sec): 90 Critical Vol./Cap.(X): 0.752  
Loss Time (sec): 0 Average Delay (sec/veh): 64.7  
Optimal Cycle: 75 Level Of Service: E  
\*\*\*\*\*

Street Name: 19th Crespi  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 48 48 48 48 53 53 53 53  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 1 0 3 0 0 0 0 3 0 1 1 0 0 1 0 0 0 0

Volume Module:  
Base Vol: 0 2266 0 0 3060 110 152 0 68 0 0 0  
Growth Adj: 1.14 1.14 1.05 1.02 1.09 1.12 1.05 1.00 1.02 1.12 1.14 1.14  
Initial Bse: 0 2576 0 0 3342 123 159 0 70 0 0 0  
Added Vol: 0 61 0 0 102 -43 -53 0 38 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2637 0 0 3444 80 106 0 108 0 0 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2690 0 0 3514 0 108 0 110 0 0 0  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2690 0 0 3514 0 108 0 110 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2690 0 0 3514 0 108 0 110 0 0 0

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 1.00 1.00 0.89 1.00 0.93 1.00 0.83 1.00 1.00 1.00  
Lanes: 1.00 3.00 0.00 0.00 3.00 1.00 1.00 0.00 1.00 0.00 0.00 0.00  
Final Sat.: 1900 5083 0 0 5083 1900 1769 0 1583 0 0 0

Capacity Analysis Module:  
Vol/Sat: 0.00 0.53 0.00 0.00 0.69 0.00 0.06 0.00 0.07 0.00 0.00 0.00  
Crit Moves: \*\*\*\*\*  
Green/Cycle: 0.53 0.53 0.53 0.59 0.59 0.59 0.24 0.24 0.24 0.00 0.00 0.00  
Volume/Cap: 0.00 0.99 0.00 0.00 1.17 0.00 0.25 0.00 0.28 0.00 0.00 0.00  
Delay/Veh: 0.0 30.4 0.0 0.0 93.2 0.0 28.7 0.0 29.4 0.0 0.0 0.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 30.4 0.0 0.0 93.2 0.0 28.7 0.0 29.4 0.0 0.0 0.0  
LOS by Move: A C A C A F A C A C A A  
HCM2kAvgQ: 0 35 0 0 57 0 3 0 3 0 0 0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1181 Chumassero / Brotherhood  
Cycle (sec): 100 Critical Vol./Cap.(X): 1.481  
Loss Time (sec): 12 Average Delay (sec/veh): 241.8  
Optimal Cycle: 180 Level Of Service: F

Street Name: Chumassero Brotherhood  
Approach: North Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R  
Control: Permitted Permitted Protected Protected  
Rights: Include Include Include Include  
Min. Green: 20 20 20 20 21 47 47 21 47 47  
Y+R: 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0  
Lanes: 0 0 1 0 0 0 0 1 0 1 0 1 0

Volume Module:  
Base Vol: 28 16 99 119 26 54 26 1494 44 175 1656 168  
Growth Adj: 1.08 1.06 1.07 1.01 1.00 1.02 1.07 1.08 1.01 1.02 1.09 1.08  
Initial Bse: 30 17 106 121 26 55 28 1609 45 179 1812 181  
Added Vol: 0 0 283 0 -14 -18 341 0 0 63 155  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 30 17 106 404 26 41 10 1950 45 179 1875 336  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 31 17 108 412 27 42 10 1990 46 183 1913 343  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 31 17 108 412 27 42 10 1990 46 183 1913 343  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Final Volume: 31 17 108 412 27 42 10 1990 46 183 1913 343

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.69 0.69 0.86 0.39 0.39 0.39 0.93 0.93 0.93 0.93 0.91  
Lanes: 0.23 0.13 0.64 0.86 0.05 0.09 1.00 1.96 0.04 1.00 1.70  
Final Sat: 300 169 1053 639 41 65 1769 3448 79 1769 2931 525  
Capacity Analysis Module:  
Vol/Sat: 0.10 0.10 0.10 0.65 0.65 0.65 0.01 0.58 0.58 0.10 0.65  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.20 0.20 0.20 0.20 0.20 0.20 0.21 0.47 0.47 0.21 0.47  
Volume/Cap: 0.51 0.51 0.51 3.23 3.23 3.23 0.03 1.23 1.23 0.49 1.39  
Delay/Veh: 41.7 41.7 41.7 1059 1059 1059 31.5 130 129.6 39.4 200.2  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 41.7 41.7 41.7 1059 1059 1059 31.5 130 129.6 39.4 200.2  
LOS by Move: D D D F F F C F F D F F  
HCM2&VQ: 4 4 5 56 56 56 0 59 59 5 78 78

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1190 Sunset / Taraval  
Cycle (sec): 60 Critical Vol./Cap.(X): 0.799  
Loss Time (sec): 10 Average Delay (sec/veh): 43.0  
Optimal Cycle: 60 Level Of Service: D

Street Name: Sunset Taraval  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 29 29 29 29 29 29 21 21 21 21  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 0 2 1 0 1 0 1 0

Volume Module:  
Base Vol: 0 2021 17 0 1965 11 79 190 53 83 169 38  
Growth Adj: 1.10 1.12 1.06 1.05 1.08 1.08 1.06 1.01 1.05 1.08 1.08 1.10  
Initial Bse: 0 2254 18 0 2130 12 84 193 56 90 183 42  
Added Vol: 0 342 0 0 212 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2596 18 0 2342 12 84 193 56 90 183 42  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2649 18 0 2390 12 86 197 57 92 186 43  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2649 18 0 2390 12 86 197 57 92 186 43  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Final Volume: 0 2649 18 0 2390 12 86 197 57 92 186 43

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 1.00 0.89 0.89 0.58 0.95 0.95 0.54 0.95  
Lanes: 0.00 2.98 0.02 0.00 2.98 0.02 1.00 0.78 0.22 1.00 0.81  
Final Sat: 0 5043 35 0 5053 26 1097 1396 403 1035 1473 337  
Capacity Analysis Module:  
Vol/Sat: 0.00 0.53 0.53 0.00 0.47 0.47 0.08 0.14 0.14 0.09 0.13  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.48 0.48 0.00 0.48 0.48 0.35 0.35 0.35 0.35 0.35  
Volume/Cap: 0.00 1.09 1.09 0.00 0.98 0.98 0.22 0.40 0.40 0.25 0.36  
Delay/Veh: 0.0 62.2 62.2 0.0 29.0 29.0 15.1 16.7 16.7 15.6 16.1  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 62.2 62.2 0.0 29.0 29.0 15.1 16.7 16.7 15.6 16.1  
LOS by Move: A E A C B B B B  
HCM2&VQ: 0 33 33 0 24 24 1 4 1 3 3

Note: Queue reported is the number of cars per lane.



19th Ave CS  
Tier 3

## Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1200 Sunset / Ocean

\*\*\*\*\*

Cycle (sec): 60 Critical Vol./Cap.(X): 0.664  
 Loss Time (sec): 9 Average Delay (sec/veh): 13.7  
 Optimal Cycle: 59 Level Of Service: B

\*\*\*\*\*

Street Name: Sunset Ocean

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted

Rights: Include Include Include Include

Min. Green: 31 31 31 31 31 31 19 19 19 19 19 19

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 2 1 0 0 0 2 1 0 0 1 0 1 0 1

\*\*\*\*\*

Volume Module:

Base Vol: 0 1318 12 0 1735 81 54 83 18 47 23 192

Growth Adj: 1.00 1.00 1.07 1.11 1.07 1.01 1.07 1.15 1.11 1.01 1.00 1.00

Initial Bse: 0 1318 13 0 1853 82 58 95 20 48 23 192

Added Vol: 0 468 0 0 247 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 1786 13 0 2100 82 58 95 20 48 23 192

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 1822 13 0 2143 84 59 97 20 49 23 196

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 0 1822 13 0 2143 84 59 97 20 49 23 196

\*\*\*\*\*

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 1.00 0.89 0.89 1.00 0.89 0.89 0.87 0.87 0.87 0.87 0.83

Lanes: 0.00 2.98 0.02 0.00 2.89 0.11 0.33 0.55 0.12 1.00 1.00 1.00

Final Sat.: 0 5042 36 0 4863 190 550 908 190 1354 1862 1583

\*\*\*\*\*

Capacity Analysis Module:

Vol/Sat: 0.00 0.36 0.36 0.00 0.44 0.44 0.11 0.11 0.11 0.04 0.01 0.12

Crit Moves: \*\*\*\*

Green/Cycle: 0.00 0.53 0.53 0.00 0.53 0.53 0.32 0.32 0.32 0.32 0.32

Volume/Cap: 0.00 0.68 0.68 0.00 0.83 0.83 0.34 0.34 0.34 0.11 0.04 0.39

Delay/Veh: 0.0 11.6 11.6 0.0 14.7 14.7 17.4 17.4 17.4 15.1 14.3 18.3

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 11.6 11.6 0.0 14.7 14.7 17.4 17.4 17.4 15.1 14.3 18.3

LOS by Move: A B A B A B B B B B B B

HCM2kAvgQ: 0 8 8 0 15 15 3 3 3 1 0 3

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 3

## Level Of Service Computation Report

2000 HCM 4-Way Stop Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1210 Skyline / Sloat / 39th

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.692  
 Loss Time (sec): 0 Average Delay (sec/veh): 17.5  
 Optimal Cycle: 0 Level Of Service: C

\*\*\*\*\*

Street Name: Skyline / 39th Sloat

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Stop Sign Stop Sign

Rights: Ignore Include Ignore Include

Min. Green: 0 1 0 0 2 0 0 0 0 0 0 0 0 0 0 0

Lanes: 0 1 0 0 2 0 0 0 1 0 0 1 0 1 2 0 1 0

\*\*\*\*\*

Volume Module:

Base Vol: 251 0 646 0 14 7 1 331 194 341 280 60

Growth Adj: 1.19 1.41 1.35 1.15 1.00 1.00 1.35 1.29 1.15 1.00 1.00 1.19

Initial Bse: 299 0 872 0 14 7 1 427 222 341 280 72

Added Vol: 0 0 1 0 0 0 0 0 16 0 3 34 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 299 0 873 0 14 7 1 443 222 344 314 72

User Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.00 0.98 0.98 0.98 0.98 0.98 0.00 0.98 0.98 0.98

PHF Volume: 306 0 0 14 7 1 452 0 351 320 73

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PCE Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00

FinalVolume: 306 0 0 14 7 1 452 0 351 320 73

\*\*\*\*\*

Saturation Flow Module:

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 0.00 2.00 0.00 0.67 0.33 0.01 1.99 1.00 2.00 1.63 0.37

Final Sat.: 442 0 1009 0 274 137 3 912 493 919 810 189

\*\*\*\*\*

Capacity Analysis Module:

Vol/Sat: 0.69 xxxxx 0.00 xxxxx 0.05 0.05 0.50 0.50 0.00 0.38 0.40 0.39

Crit Moves: \*\*\*\*

Delay/Veh: 25.8 0.0 0.0 0.0 11.4 11.4 17.3 17.3 0.0 14.9 14.1 13.7

Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 25.8 0.0 0.0 0.0 11.4 11.4 17.3 17.3 0.0 14.9 14.1 13.7

LOS by Move: D \* \* B C C \* B B B

ApproachDel: 25.8 11.4 17.3

Delay Adj: 1.00 1.00 1.00

ApprAdjDel: 25.8 11.4 17.3

LOS by Appr: D B C

AllwayAvgQ: 1.9 1.9 0.0 0.0 0.0 0.0 0.9 0.9 0.0 0.6 0.6 0.6

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)  
\*\*\*\*\*  
Intersection #1200 Sunset / Ocean  
\*\*\*\*\*  
Cycle (sec): 60 Critical Vol./Cap.(X): 0.590  
Loss Time (sec): 9 Average Delay (sec/veh): 12.0  
Optimal Cycle: 59 Level Of Service: B  
\*\*\*\*\*

Street Name: Sunset Ocean  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 31 31 31 31 31 19 19 19 19 19  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 2 1 0 0 1 0 0 1 0 1

Volume Module:  
Base Vol: 0 1682 14 0 1589 60 30 61 18 37 47 226  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 0 1682 14 0 1589 60 30 61 18 37 47 226  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 0 1771 15 0 1673 63 32 64 19 39 49 238  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 1771 15 0 1673 63 32 64 19 39 49 238  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 1771 15 0 1673 63 32 64 19 39 49 238

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 1.00 0.89 0.89 0.88 0.88 0.76 0.98 0.83  
Lanes: 0.00 2.98 0.02 0.00 2.89 0.11 0.28 0.56 0.16 1.00 1.00  
Final Sat: 0 5036 42 0 4974 184 463 941 278 1445 1862 1583

Capacity Analysis Module:  
Vol/Sat: 0.00 0.35 0.35 0.00 0.34 0.34 0.07 0.07 0.07 0.03 0.03 0.15  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.53 0.53 0.00 0.53 0.53 0.32 0.32 0.32 0.32 0.32  
Volume/Cap: 0.00 0.66 0.66 0.00 0.64 0.64 0.22 0.22 0.22 0.09 0.08 0.47  
Delay/Veh: 0.0 11.4 11.4 0.0 11.1 11.1 16.0 16.0 16.0 14.8 14.7 19.7  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 11.4 11.4 0.0 11.1 11.1 16.0 16.0 16.0 14.8 14.7 19.7  
LOS by Move: A B A B A B B B B B B  
HCM2kAvgQ: 0 8 8 0 9 9 2 2 2 0 1 3

Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

Level Of Service Computation Report  
2000 HCM 4-Way Stop Method (Base Volume Alternative)  
\*\*\*\*\*  
Intersection #1210 Skyline / Sloat / 39th  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.803  
Loss Time (sec): 0 Average Delay (sec/veh): 21.4  
Optimal Cycle: 0 Level Of Service: C  
\*\*\*\*\*

Street Name: Skyline / 39th Sloat  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Stop Sign Stop Sign Stop Sign Stop Sign  
Rights: Ignore Include Ignore Include  
Min. Green: 0 1 0 0 2 0 0 0 1 0 0 0 2 0 0 0 0 0 0 0  
Lanes: 0 1 0 0 2 0 0 0 1 0 0 0 2 0 1 2 0 1 1 0

Volume Module:  
Base Vol: 327 0 565 0 21 7 0 352 163 450 435 64  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 327 0 565 0 21 7 0 352 163 450 435 64  
User Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.00 0.95 0.95 0.95 0.95 0.95 0.00 0.95 0.95 0.95  
PHF Volume: 344 0 0 0 22 7 0 371 0 474 458 67  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 344 0 0 0 22 7 0 371 0 474 458 67  
PCE Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00  
FinalVolume: 344 0 0 0 22 7 0 371 0 474 458 67

Saturation Flow Module:  
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Lanes: 1.00 0.00 2.00 0.00 0.75 0.25 0.00 2.00 1.00 2.00 1.74 0.26  
Final Sat: 429 0 970 0 297 99 0 818 435 905 852 127

Capacity Analysis Module:  
Vol/Sat: 0.80 xxxx 0.00 xxxx 0.07 0.07 xxxx 0.45 0.00 0.52 0.54 0.53  
Crit Moves: \*\*\*\*  
Delay/Veh: 35.8 0.0 0.0 0.0 12.0 12.0 0.0 17.5 0.0 18.5 17.8 17.3  
AdjDel/Veh: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
LOS by Move: E + + B B + C C C C C  
ApproachDel: 35.8 12.0 12.0 17.5 18.1  
Delay Adj: 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 35.8 12.0 12.0 17.5 18.1  
LOS by Appr: E B C  
AllwayAvgQ: 3.0 3.0 0.0 0.1 0.1 0.1 0.0 0.7 0.0 1.0 1.1 1.0

Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

Level of Service Computation Report  
2000 HCM Unsignalized Method (Base Volume Alternative)  
Intersection #1221 Skyline / Lake Merced (WBR)

Average Delay (sec/veh): 1.8 Worst Case Level Of Service: B[ 13.1]  
Street Name: Skyline  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign  
Rights: Include Include Include Include  
Lanes: 0 0 2 0 0 1 0 2 0 0 0 0 0 0 0 0 0 0 0 1

Volume Module:  
Base Vol: 0 853 0 100 489 0 0 0 0 0 0 0 133  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 0 853 0 100 489 0 0 0 0 0 0 0 133  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Volume: 0 853 0 100 489 0 0 0 0 0 0 0 133  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0  
FinalVolume: 0 853 0 100 489 0 0 0 0 0 0 0 133

Critical Gap Module:  
Critical Gp:xxxxx xxxx xxxx 4.1 xxxx xxxx xxxx xxxx xxxx xxxx 6.9  
FollowUpTim:xxxxx xxxx xxxx 2.2 xxxx xxxx xxxx xxxx xxxx xxxx 3.3

Capacity Module:  
Conflict Vol: xxxx xxxx xxxx 853 xxxx xxxx xxxx xxxx xxxx 427  
Potent Cap.: xxxx xxxx xxxx 782 xxxx xxxx xxxx xxxx xxxx 576  
Move Cap.: xxxx xxxx xxxx 782 xxxx xxxx xxxx xxxx xxxx 576  
Volume/Cap: xxxx xxxx xxxx 0.13 xxxx xxxx xxxx xxxx xxxx 0.23

Level of Service Module:  
2Way95thQ: xxxx xxxx xxxx 0.4 xxxx xxxx xxxx xxxx xxxx 0.9  
Control Del:xxxxx xxxx xxxx 10.3 xxxx xxxx xxxx xxxx xxxx 13.1  
LOS by Move: \* \* \* \* \* B \* \* \* \* \* B  
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Shared Cap.: xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx  
SharedQueue:xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx  
Shrd ConDel:xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx  
Shared LOS: \* \* \* \* \* \* \* \* \* \* \*  
ApproachDel: xxxxxx  
ApproachLOS: \* \* \* \* \* 13.1 B

Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

Level of Service Computation Report  
2000 HCM Unsignalized Method (Base Volume Alternative)  
Intersection #1222 Skyline / Lake Merced (WBLT)

Average Delay (sec/veh): 2.2 Worst Case Level Of Service: E[ 42.8]  
Street Name: Skyline  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign  
Rights: Include Include Include Include  
Lanes: 1 0 1 1 0 0 0 2 0 1 0 0 0 0 1 0 1 0 0

Volume Module:  
Base Vol: 8 853 118 0 468 21 0 0 0 0 75 3 0  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 8 853 118 0 468 21 0 0 0 0 75 3 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 8 898 124 0 493 22 0 0 0 0 79 3 0  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0  
FinalVolume: 8 898 124 0 493 22 0 0 0 0 79 3 0

Critical Gap Module:  
Critical Gp: 4.1 xxxx xxxx xxxx xxxx xxxx xxxx 6.8 6.5 xxxxx  
FollowUpTim: 2.2 xxxx xxxx xxxx xxxx xxxx xxxx 3.5 4.0 xxxxx

Capacity Module:  
Conflict Vol: 515 xxxx xxxx xxxx xxxx xxxx xxxx 1223 1492 xxxxx  
Potent Cap.: 1047 xxxx xxxx xxxx xxxx xxxx xxxx 172 122 xxxxx  
Move Cap.: 1047 xxxx xxxx xxxx xxxx xxxx xxxx 171 121 xxxxx  
Volume/Cap: 0.01 xxxx xxxx xxxx xxxx xxxx xxxx 0.46 0.03 xxxxx

Level of Service Module:  
2Way95thQ: 0.0 xxxx xxxx xxxx xxxx xxxx xxxx 2.2 0.1 xxxxx  
Control Del: 8.5 xxxx xxxxx xxxxx xxxxx xxxxx xxxxx 43.1 35.4 xxxxx  
LOS by Move: A \* \* \* \* \* \* \* \* \* \* \* E \*  
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Shared Cap.: xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx  
SharedQueue:xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
Shared LOS: \* \* \* \* \* \* \* \* \* \* \*  
ApproachDel: xxxxxx  
ApproachLOS: \* \* \* \* \* 42.8 E

Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*



Level Of Service Computation Report  
2000 HCM Unsignalized Method (Base Volume Alternative)  
\*\*\*\*\*  
Intersection #1230 Sunset / Lake Merced  
\*\*\*\*\*  
Average Delay (sec/veh): 1.5 Worst Case Level Of Service: D [28.2]  
\*\*\*\*\*  
Street Name: Sunset  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign  
Rights: Ignore Ignore Ignore Ignore  
Lanes: 1 0 2 0 0 0 2 0 1 1 0 0 0 1 0 0 1 0 0  
\*\*\*\*\*  
Volume Module:  
Base Vol: 197 1777 0 0 1550 52 19 0 195 0 0 0  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 197 1777 0 0 1550 52 19 0 195 0 0 0  
User Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 0.00  
PHF Adj: 0.95 0.95 0.00 0.95 0.95 0.00 0.95 0.95 0.00 0.95 0.95 0.00  
PHF Volume: 207 1871 0 0 1632 0 20 0 0 0 0 0  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
FinalVolume: 207 1871 0 0 1632 0 20 0 0 0 0 0  
\*\*\*\*\*  
Critical Gap Module:  
Critical Gap: 4.1 xxxxx xxxxx xxxxx 2.8 xxxx 6.9 7.5 2.5 6.9  
FollowUpTim: 2.2 xxxxx xxxxx xxxxx xxxxx 3.5 xxxx 3.3 3.5 4.0 3.3  
\*\*\*\*\*  
Capacity Module:  
Conflict Vol: 1632 xxxxx xxxxx xxxxx 2982 xxxxx 816 3101 3917 935  
Potent Cap.: 394 xxxxx xxxxx xxxxx xxxxx 300 xxxxx 320 5 250 267  
Move Cap.: 394 xxxxx xxxxx xxxxx xxxxx 175 xxxxx 320 3 118 267  
Volume/Cap: 0.53 xxxxx xxxxx xxxxx xxxxx 0.11 xxxxx 0.00 0.00 0.00 0.00  
\*\*\*\*\*  
Level Of Service Module:  
2Way95thQ: 3.0 xxxxx xxxxx xxxxx xxxxx 0.4 xxxxx xxxxx xxxxx xxxxx  
Control Del: 23.9 xxxxx xxxxx xxxxx xxxxx 28.2 xxxxx xxxxx xxxxx xxxxx  
LOS by Move: C \* \* \* \* \* D \* \* \* \* \*  
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Shared Cap.: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx 0 xxxxx  
SharedQueue: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
Shrd ConDel: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
Shared LOS: \* \* \* \* \* \* \* \* \* \*  
ApproachDel: xxxxx xxxxx 28.2 D  
ApproachLOS: \* \* \* \* \*  
\*\*\*\*\*  
Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)  
\*\*\*\*\*  
Intersection #1240 Lake Merced / Winston  
\*\*\*\*\*  
Cycle (sec): 90 Critical Vol./Cap.(X): 0.640  
Loss Time (sec): 9 Average Delay (sec/veh): 48.2  
Optimal Cycle: 89 Level Of Service: D  
\*\*\*\*\*  
Street Name: Lake Merced  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Protected Include Split Phase  
Rights: WidenBypass Include Include  
Min. Green: 34 34 34 17 55 55 0 0 0 25 25 25  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 2 0 2 0 0 0 0 0 2 0 0 1  
\*\*\*\*\*  
Volume Module:  
Base Vol: 0 1747 404 204 1229 0 0 0 180 0 284  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 0 1747 404 204 1229 0 0 0 180 0 284  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 0 1839 425 215 1294 0 0 0 189 0 299  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0  
FinalVolume: 0 1839 425 215 1294 0 0 0 189 0 299  
\*\*\*\*\*  
Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.87 0.87 0.90 0.93 1.00 1.00 1.00 1.00 0.83  
Lanes: 0.00 2.44 0.56 2.00 2.00 0.00 0.00 0.00 0.00 1.00  
Final Sat.: 0 4013 928 3432 3538 0 0 0 3432 0 1583  
\*\*\*\*\*  
Capacity Analysis Module:  
Vol/Sat: 0.00 0.46 0.46 0.06 0.37 0.00 0.00 0.00 0.06 0.00 0.19  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.42 0.42 0.19 0.60 0.00 0.00 0.00 0.30 0.00 0.30  
Volume/Cap: 0.00 1.10 1.10 0.33 0.60 0.00 0.00 0.00 0.19 0.00 0.64  
Delay/Veh: 0.0 76.8 76.8 33.0 7.5 0.0 0.0 0.0 24.1 0.0 34.2  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 76.8 76.8 33.0 7.5 0.0 0.0 0.0 24.1 0.0 34.2  
LOS by Move: A E E C A A A A C A C  
HCM2KAVGQ: 0 37 2 8 0 0 0 0 2 0 8  
\*\*\*\*\*  
Note: Queue reported is the number of cars per lane.

Existing PM	Mon Jan 4, 2010 09:02:47												Page 29-1
-----													
19th Ave CS													
Existing													
-----													
Level of Service Computation Report													
2000 HCM Operations Method (Base Volume Alternative)													
*****													
Intersection #1250 Lake Merced / Font													
*****													
Cycle (sec):	90	Critical Vol./Cap.(X): 0.598											
Loss Time (sec):	7	Average Delay (sec/veh): 32.8											
Optimal Cycle:	180	Level Of Service: C											
*****													
Street Name:	Lake Merced Font												
Approach:	North Bound			South Bound			East Bound			West Bound			
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R		
Control:	Permitted			Protected			Split Phase			Split Phase			
Rights:	Ignore			Include			Include			Include			
Min. Green:	43	43	43	15	61	61	0	0	0	22	0		
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Lanes:	0	0	2	0	1	1	0	2	0	0	0		
-----													
Volume Module:													
Base Vol:	0	1683	17	176	1644	0	0	0	0	104	0		
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Initial Bse:	0	1683	17	176	1644	0	0	0	0	104	0		
User Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
PHF Adj:	0.95	0.95	0.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95		
PHF Volume:	0	1772	0	185	1731	0	0	0	0	109	0		
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0		
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0		
PCE Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
MLF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
FinalVolume:	0	1772	0	185	1731	0	0	0	0	109	0		
-----													
Saturation Flow Module:													
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Adjustment:	1.00	0.93	1.00	0.93	0.93	1.00	1.00	1.00	1.00	0.93	1.00		
Lanes:	0.00	2.00	1.00	1.00	2.00	0.00	0.00	0.00	0.00	1.00	0.00		
Final Sat:	0	3538	1900	1769	3538	0	0	0	0	1769	0		
-----													
Capacity Analysis Module:													
Vol/Sat:	0.00	0.50	0.00	0.10	0.49	0.00	0.00	0.00	0.00	0.06	0.00		
Crit Moves:	****												
Green/Cycle:	0.00	0.48	0.00	0.20	0.68	0.00	0.00	0.00	0.00	0.24	0.00		
Volume/Cap:	0.00	1.05	0.00	0.52	0.72	0.00	0.00	0.00	0.00	0.25	0.00		
Delay/Veh:	0.0	54.5	0.0	37.6	5.1	0.0	0.0	0.0	0.0	28.8	0.0		
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
AdjDel/Veh:	0.0	54.5	0.0	37.6	5.1	0.0	0.0	0.0	0.0	28.8	0.0		
LOS by Move:	A	D	A	A	D	A	A	A	A	C	A		
HCM2KAVGQ:	0	37	0	5	9	0	0	0	0	3	0		
*****													
Note: Queue reported is the number of cars per lane.													
*****													

Existing PM	Mon Jan 4, 2010 09:02:47												Page 30-1
-----													
19th Ave CS													
Existing													
-----													
Level Of Service Computation Report													
2000 HCM Operations Method (Base Volume Alternative)													
*****													
Intersection #1263 Lake Merced / Higuera													
*****													
Cycle (sec):	90	Critical Vol./Cap.(X):										0.726	
Loss Time (sec):	11	Average Delay (sec/veh):										59.2	
Optimal Cycle:	90	Level Of Service:										E	
*****													
Street Name: Lake Merced Higuera													
Approach:	North Bound			South Bound			East Bound			West Bound			
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R		
Control:	Permitted			Protected			Split Phase			Split Phase			
Rights:	Include			Include			Include			Include			
Min. Green:	41	41	41	11	59	59	0	0	0	20	0		
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Lanes:	0	0	1	1	0	1	0	2	0	0	0		
-----													
Volume Module:													
Base Vol:	0	1675	127	59	1717	0	0	0	0	102	0		
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Initial Bse:	0	1675	127	59	1717	0	0	0	0	102	0		
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95		
PHF Volume:	0	1763	134	62	1807	0	0	0	0	107	0		
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0		
Reduced Vol:	0	1763	134	62	1807	0	0	0	0	107	0		
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
FinalVolume:	0	1763	134	62	1807	0	0	0	0	107	0		
-----													
Saturation Flow Module:													
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Adjustment:	1.00	0.92	0.92	0.93	0.93	1.00	1.00	1.00	1.00	0.93	1.00		
Lanes:	0.00	1.86	0.14	1.00	2.00	0.00	0.00	0.00	0.00	1.00	0.00		
Final Sat:	0	3256	247	1769	3538	0	0	0	0	1769	0		
-----													
Capacity Analysis Module:													
Vol/Sat:	0.00	0.54	0.54	0.04	0.51	0.00	0.00	0.00	0.00	0.06	0.00		
Crit Moves:	****												
Green/Cycle:	0.46	0.46	0.46	0.12	0.66	0.66	0.00	0.00	0.00	0.22	0.22		
Volume/Cap:	0.00	1.19	1.19	0.29	0.78	0.00	0.00	0.00	0.00	0.27	0.00		
Delay/Veh:	0.0	112	111.8	39.3	7.3	0.0	0.0	0.0	0.0	30.7	0.0		
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
AdjDel/Veh:	0.0	112	111.8	39.3	7.3	0.0	0.0	0.0	0.0	30.7	0.0		
LOS by Move:	A	F	F	D	A	A	A	A	A	C	A		
HCM2KavgQ:	0	50	50	2	14	0	0	0	0	3	0		
*****													
Note: Queue reported is the number of cars per lane.													
*****													

19th Ave CS  
ExistingLevel of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)  
Intersection #1270 Lake Merced / BrotherhoodCycle (sec): 107 Critical Vol./Cap.(X): 1.677  
Loss Time (sec): 15 Average Delay (sec/veh): 30.3  
Optimal Cycle: 180 Level Of Service: CStreet Name: Lake Merced Brotherhood  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - RControl: Permitted Protected Split Phase Split Phase  
Rights: WideBypass Include Include  
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0  
Y+R: 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0  
Lanes: 0 0 2 0 1 2 0 1 0 0 0 0 0 0 1 0 0 0 1Volume Module:  
Base Vol: 0 504 195 1342 517 0 0 0 0 267 0 1323  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 0 504 195 1342 517 0 0 0 0 267 0 1323  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 0 531 205 1413 0 0 0 0 0 281 0 1393  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 0 531 205 1413 0 0 0 0 0 281 0 1393  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 531 205 1413 0 0 0 0 0 281 0 1393Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.83 0.90 1.00 1.00 1.00 1.00 1.00 0.93 1.00 0.83  
Lanes: 0.00 2.00 1.00 2.00 1.00 0.00 0.00 0.00 0.00 1.00 0.00 1.00  
Final Sat.: 0 3538 1583 3432 1900 0 0 0 0 1769 0 1583Capacity Analysis Module:  
Vol/Sat: 0.00 0.15 0.13 0.41 0.00 0.00 0.00 0.00 0.00 0.16 0.00 0.88  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.21 0.21 0.21 0.43 0.68 0.00 0.00 0.00 0.00 0.22 0.22 1.00  
Volume/Cap: 0.00 0.73 0.63 0.96 0.00 0.00 0.00 0.00 0.00 0.71 0.00 0.88  
Delay/Veh: 0.0 46.1 47.8 40.7 0.0 0.0 0.0 0.0 0.0 48.5 0.0 7.3  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 46.1 47.8 40.7 0.0 0.0 0.0 0.0 0.0 48.5 0.0 7.3  
LOS by Move: A D D A A A A A D A A  
HCM2kVgQ: 0 10 7 29 0 0 0 0 0 10 0 6

Note: Queue reported is the number of cars per lane.



Existing Conditions  
Weekend Midday Peak Hour

Level Of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)  
Intersection #1030 Junipero Serra / Sloat / West Portal / St. Francis  
Cycle (sec): 105 Critical Vol./Cap.(X): 1.002  
Loss Time (sec): 16 Average Delay (sec/veh): 125.2  
Optimal Cycle: 180 Level Of Service: F

Street Name: Junipero Serra / West Portal Sloat / St. Francis  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Protected Permitted Split Phase Split Phase  
Rights: Include Include Ignore Include  
Min. Green: 16 50 50 29 29 29 18 18 18 20 20 20  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 3 0 1 1 0 0 0 2 1 0 3 0 1 0 1 0 1 0

Volume Module:  
Base Vol: 1575 1246 23 0 787 272 895 346 371 14 293 26  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 1575 1246 23 0 787 272 895 346 371 14 293 26  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 1658 1312 24 0 828 286 942 364 0 15 308 27  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 1658 1312 24 0 828 286 942 364 0 15 308 27  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 1658 1312 24 0 828 286 942 364 0 15 308 27

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.89 0.92 0.92 1.00 0.87 0.87 0.89 0.97 1.00 0.92 0.92 0.92  
Lanes: 3.00 1.96 0.94 0.00 2.23 0.77 3.00 1.00 1.00 0.08 1.76 0.16  
Final Sat.: 5096 3429 63 0 3667 1267 5096 1843 1900 147 3069 272

Capacity Analysis Module:  
Vol/Sat: 0.33 0.38 0.38 0.00 0.23 0.23 0.18 0.20 0.00 0.10 0.10 0.10  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.21 0.49 0.49 0.00 0.28 0.28 0.17 0.17 0.00 0.19 0.19 0.19  
Volume/Cap: 1.55 0.79 0.79 0.00 0.82 0.82 1.08 1.15 0.00 0.53 0.53 0.53  
Delay/Veh: 295.0 21.5 21.5 0.0 41.1 41.1 97.4 142 0.0 41.2 41.2 41.2  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 295.0 21.5 21.5 0.0 41.1 41.1 97.4 142 0.0 41.2 41.2 41.2  
LOS by Move: F C C A D D F F A D D D  
HCM2kVgQ: 43 17 17 0 14 14 17 21 0 6 6 6

Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

Level Of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)  
Intersection #1070 Junipero Serra / 19th  
Cycle (sec): 100 Critical Vol./Cap.(X): 1.638  
Loss Time (sec): 17 Average Delay (sec/veh): 193.1  
Optimal Cycle: 180 Level Of Service: F

Street Name: Junipero Serra  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Split Phase Split Phase Split Phase Permitted  
Rights: Ignore Ignore Ovl Include  
Min. Green: 54 54 54 20 20 20 9 9 9 9 9 9  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 2 1 0 1 0 0 1 2 1 0 0 1 0 3 1 0 0 1 0

Volume Module:  
Base Vol: 2245 1828 70 0 1917 12 0 85 4216 28 48 28  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 2245 1828 70 0 1917 12 0 85 4216 28 48 28  
User Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.00 0.95 0.95 0.00 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 2363 1924 0 0 2018 0 0 89 4438 29 51 29  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 2363 1924 0 0 2018 0 0 89 4438 29 51 29  
PCE Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 2363 1924 0 0 2018 0 0 89 4438 29 51 29

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.88 0.91 0.95 0.91 0.89 0.91 1.00 0.98 0.73 0.68 0.93 0.93  
Lanes: 2.23 1.77 0.00 0.00 4.00 0.00 0.00 1.00 3.00 1.00 0.63 0.37  
Final Sat.: 3731 3038 0 0 6778 0 0 1862 4178 1300 1111 648

Capacity Analysis Module:  
Vol/Sat: 0.63 0.63 0.00 0.00 0.30 0.00 0.00 0.05 1.06 0.02 0.05 0.05  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.54 0.54 0.54 0.20 0.20 0.20 0.09 0.09 0.68 0.09 0.09 0.09  
Volume/Cap: 1.17 1.17 0.00 0.00 1.49 0.00 0.00 0.53 1.56 0.25 0.51 0.51  
Delay/Veh: 97.1 97.1 0.0 0.0 264 0.0 0.0 55.2 260.0 47.5 54.4 54.4  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 97.1 97.1 0.0 0.0 264 0.0 0.0 55.2 260.0 47.5 54.4 54.4  
LOS by Move: F F A A F A A F D D D  
HCM2kVgQ: 58 58 0 0 40 0 0 3 125 1 3 3

Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

Existing WE Mon Jan 4, 2010 09:09:26 Page 14-1

19th Ave CS  
Existing Weekend

Level Of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)

Intersection #110 19th / Sloat

Cycle (sec): 100 Critical Vol./Cap.(X): 1.445  
Loss Time (sec): 9 Average Delay (sec/veh): 56.0  
Optimal Cycle: 180 Level Of Service: E

Street Name: 19th Sloat

Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Protected Include Permitted+Prot Include Permitted  
Rights: 0 43 43 11 58 58 4 33 33 24 24 24  
Min. Green: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Y+R: 0 0 2 1 0 1 0 2 1 0 1 1 1 0 0 0 3 0 1  
Lanes: 0 0 2 1 0 1 0 2 1 0 1 1 1 0 0 0 3 0 1

Volume Module:

Base Vol: 0 2032 83 275 2702 314 266 1157 123 0 1123 426  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 0 2032 83 275 2702 314 266 1157 123 0 1123 426  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 0 2139 87 289 2844 331 280 1218 129 0 1182 448  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2139 87 289 2844 331 280 1218 129 0 1182 448  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Volume: 0 2139 87 289 2844 331 280 1218 129 0 1182 448  
FinalVolume: 0 2139 87 289 2844 331 280 1218 129 0 1182 448

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
AdjVolume: 1.00 0.89 0.88 0.93 0.88 0.87 0.60 0.87 0.86 1.00 0.89 0.68  
Lanes: 0.00 2.88 0.12 1.00 2.68 0.32 1.00 2.71 0.29 0.00 3.00 1.00  
Final Sat.: 0 4853 198 1769 4476 520 1134 4492 478 0 5083 1283

Capacity Analysis Module:

Vol/Sat: 0.00 0.44 0.44 0.16 0.64 0.64 0.25 0.27 0.27 0.00 0.23 0.35  
Crit Moves: 0.00 0.43 0.43 0.18 0.61 0.61 0.30 0.30 0.30 0.00 0.24 0.24  
Green/Cycle: 0.00 1.02 1.02 0.90 1.04 1.04 1.01 0.91 0.91 0.00 0.97 1.46  
Volume/Cap: 0.00 50.5 50.5 70.4 38.1 38.1 24.6 42.1 42.1 0.0 57.0 260.5  
Delay/Veh: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
User DelAdj: 0.0 50.5 50.5 70.4 38.1 38.1 24.6 42.1 42.1 0.0 57.0 260.5  
AdjDel/Veh: 0.0 50.5 50.5 70.4 38.1 38.1 24.6 42.1 42.1 0.0 57.0 260.5  
LOS by Move: A D D E D C D D A E F  
HCM2kAVGQ: 0 27 27 12 47 47 15 19 18 0 18 33

Note: Queue reported is the number of cars per lane.

Existing WE Mon Jan 4, 2010 09:09:26 Page 17-1

19th Ave CS  
Existing Weekend

Level Of Service Computation Report  
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1140 19th / Winston

Cycle (sec): 100 Critical Vol./Cap.(X): 0.899  
Loss Time (sec): 13 Average Delay (sec/veh): 42.0  
Optimal Cycle: 111 Level Of Service: D

Street Name: 19th Winston

Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Include Permitted AddLane Permitted  
Rights: 16 45 45 45 45 45 24 24 24 24 24 24  
Min. Green: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Y+R: 2 0 2 1 0 0 0 3 0 1 1 1 0 1 0 1 0 1 0  
Lanes: 2 0 2 1 0 0 0 3 0 1 1 1 0 1 0 1 0 1 0

Volume Module:

Base Vol: 424 1667 58 0 2144 200 155 253 325 17 319 25  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 424 1667 58 0 2144 200 155 253 325 17 319 25  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 446 1755 61 0 2257 211 163 266 342 18 336 26  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 446 1755 61 0 2257 211 163 266 342 18 336 26  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Volume: 446 1755 61 0 2257 211 163 266 342 18 336 26  
FinalVolume: 446 1755 61 0 2257 211 163 266 342 18 336 26

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
AdjVolume: 0.90 0.89 0.88 1.00 1.34 0.72 0.25 0.19 0.69 0.85 0.86 0.85  
Lanes: 2.00 2.90 0.10 0.00 3.00 1.00 0.97 2.03 1.00 0.09 1.77 0.14  
Final Sat.: 3432 4887 170 0 7625 1367 459 748 1309 154 2881 226

Capacity Analysis Module:

Vol/Sat: 0.13 0.36 0.36 0.00 0.30 0.15 0.36 0.36 0.26 0.12 0.12 0.12  
Crit Moves: 0.16 0.44 0.44 0.44 0.44 0.44 0.27 0.27 0.27 0.27 0.27 0.27  
Green/Cycle: 0.81 0.82 0.82 0.00 0.67 0.35 1.34 1.34 0.99 0.44 0.44 0.44  
Volume/Cap: 53.0 24.2 24.2 0.0 20.0 17.3 210.5 211 81.5 32.2 32.2 32.2  
Delay/Veh: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
User DelAdj: 53.0 24.2 24.2 0.0 20.0 17.3 210.5 211 81.5 32.2 32.2 32.2  
AdjDel/Veh: 53.0 24.2 24.2 0.0 20.0 17.3 210.5 211 81.5 32.2 32.2 32.2  
LOS by Move: D C C A B B F F C C C  
HCM2kAVGQ: 7 17 17 0 18 4 13 11 16 5 5 5

Note: Queue reported is the number of cars per lane.







Tier 1 Conditions  
Weekday AM Peak Hour



Scenario: Tier 1 AM Scenario Report  
-----

Command: Default Command  
Volume: Tier 1 AM  
Geometry: Existing AM  
Impact Fee: Default Impact Fee  
Trip Generation: No Projects  
Trip Distribution: AM  
Paths: Tier 2/3  
Routes: Tier 2/3  
Configuration: Existing

Impact Analysis Report  
Level Of Service  
-----

Intersection	Base		Future		Change
	Del/	V/	Del/	V/	in
	LOS	C	LOS	C	
#1010 Clarendont / Taraval / Dewey /	A	6.9 0.657	A	6.9 0.657	+ 0.000 V/C
#1020 Santa Clara / Portola / Vicent	C	30.5 0.848	C	30.5 0.848	+ 0.000 D/V
#1030 Junipero Serra / Sloat / West	F	93.4 1.087	F	93.4 1.087	+ 0.000 D/V
#1040 Junipero Serra / Ocean / Euca	D	41.7 0.770	D	41.7 0.770	+ 0.000 D/V
#1050 Junipero Serra / Winston / Mer	D	35.7 0.639	D	35.7 0.639	+ 0.000 D/V
#1060 Junipero Serra / Holloway	C	33.2 0.683	C	33.2 0.683	+ 0.000 D/V
#1070 Junipero Serra / 19th	F	96.4 0.951	F	96.4 0.951	+ 0.000 D/V
#1075 Junipero Serra / Chumase	A	2.2 0.701	A	2.2 0.701	+ 0.000 D/V
#1080 Junipero Serra / I-280 NB On-R	D	40.4 0.796	D	40.4 0.796	+ 0.000 D/V
#1090 Junipero Serra / I-280 SB On-R	C	20.5 0.574	C	20.5 0.574	+ 0.000 D/V
#1100 19th / Taraval	C	26.9 0.823	C	26.9 0.823	+ 0.000 D/V
#1110 19th / Sloat	F	111.3 1.475	F	111.3 1.475	+ 0.000 D/V
#1120 19th / Ocean	D	44.8 1.098	D	46.9 1.101	+ 2.044 D/V
#1130 19th / Eucalyptus	C	22.7 0.840	C	22.7 0.840	-0.037 D/V
#1140 19th / Winston	D	52.9 0.991	D	52.9 0.991	+ 0.000 D/V
#1150 19th / Buckingham	F	60.8 0.699	F	60.8 0.699	+ 0.000 D/V
#1160 19th / Holloway	E	65.9 0.859	E	65.9 0.859	+ 0.000 D/V
#1170 19th / Crespi	E	58.0 0.770	E	58.1 0.770	+ 0.050 D/V
#1181 Chumase	F	99.6 0.973	F	99.6 0.973	+ 0.000 D/V
#1190 Sunset / Taraval	C	21.8 0.724	C	21.8 0.724	+ 0.000 D/V
#1200 Sunset / Ocean	B	12.1 0.612	B	12.1 0.612	+ 0.000 D/V
#1210 Skyline / Sloat / 39th	C	17.2 0.693	C	17.2 0.693	+ 0.000 V/C
#1221 Skyline / Lake Merced (WBR)	C	15.2 0.213	C	15.2 0.213	+ 0.000 D/V
#1222 Skyline / Lake Merced (WBLT)	F	54.5 0.392	F	54.5 0.392	+ 0.000 D/V

Intersection	Base Del/ LOS Veh	V/ C	Future Del/ LOS Veh	Change in
#1230 Sunset / Lake Merced	F 166.2	0.626	F 166.2	0.626 + 0.000 D/V
#1240 Lake Merced / Winston	C 30.1	0.698	C 29.2	0.698 -0.868 D/V
#1250 Lake Merced / Font	E 64.2	0.753	E 64.6	0.753 + 0.314 D/V
#1263 Lake Merced / Higuera	F 98.9	0.786	F 98.9	0.786 + 0.000 D/V
#1270 Lake Merced / Brotherhood	F 100.4	2.124	F 100.3	2.124 -0.060 D/V

Level of Service Computation Report FHWA Roundabout Method (Future Volume Alternative)											
Intersection #1010 Claremont / Taraval / Dewey / Kensington											
Average Delay (sec/veh): 6.9 Level of Service: A											
Street Name: Claremont Taraval / Dewey											
Approach: North Bound South Bound East Bound West Bound											
Movement: L - T - R L - T - R L - T - R L - T - R											
Control: Yield Sign Yield sign Yield sign Yield sign											
Lanes: 1 1 1 1											
Volume Module:											
Base Vol:	3	7	221	10	60	37	1	231	27	313	337
Growth Adj:	1.03	1.02	1.02	1.02	1.02	1.03	1.02	1.01	1.02	1.03	1.04
Initial Bse:	3	7	224	10	61	38	1	233	27	323	351
Added Vol:	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	3	7	224	10	61	38	1	233	27	323	351
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	3	7	231	10	63	39	1	241	28	333	361
Reduc Vol:	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	3	7	231	10	63	39	1	241	28	333	361
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	3	7	231	10	63	39	1	241	28	333	361
PCE Module:											
AutoPCE:	3	7	231	10	63	39	1	241	28	333	361
TruckPCE:	0	0	0	0	0	0	0	0	0	0	0
ComboPCE:	0	0	0	0	0	0	0	0	0	0	0
BicyclePCE:	0	0	0	0	0	0	0	0	0	0	0
AdjVolume:	3	7	231	10	63	39	1	241	28	333	361
Delay Module: >> Time Period: 0.25 hours <<											
CircVolume:	252			698				407		12	
MaxVolume:	1064			823				980		1194	
PedVolume:	0			0				0		0	
AdjMaxVol:	1064			823				980		1194	
ApproachVol:	242			113				270		784	
ApproachV/C:	0.23			0.14				0.28		0.66	
ApproachDel:	4.4			5.1				5.1		8.6	
ApproachLOS:	A			A				A		A	
Queue:	0.9			0.5				1.1		5.2	





Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1040 Junipero Serra / Ocean / Euclalyptus  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.770  
Loss Time (sec): 14 Average Delay (sec/veh): 41.7  
Optimal Cycle: 100 Level Of Service: D

Street Name: Junipero Serra Ocean / Euclalyptus  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Protected Protected Protected Protected Permitted Permitted  
Rights: Include Include Ovl Ovl  
Min. Green: 11 43 43 16 48 48 27 27 27 27 27 27  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 1 0 2 1 0 2 0 2 1 0 1 0 1 0 1 0 1

Volume Module:  
Base Vol: 189 1678 46 326 1061 90 85 384 45 54 368 324  
Growth Adj: 1.16 1.14 1.16 1.14 1.09 1.14 1.16 1.19 1.14 1.14 1.19 1.16  
Initial Bse: 220 1907 53 371 1159 103 99 456 51 62 437 376  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 220 1907 53 371 1159 103 99 456 51 62 437 376  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97  
PHF Volume: 226 1966 55 383 1194 106 102 470 53 63 450 388  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 226 1966 55 383 1194 106 102 470 53 63 450 388  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 226 1966 55 383 1194 106 102 470 53 63 450 388

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.92 0.88 0.88 0.91 0.89 0.89 0.60 0.60 0.83 0.98 0.98 0.83  
Lanes: 1.00 2.92 0.08 2.00 2.76 0.24 0.36 1.64 1.00 0.12 0.88 1.00  
Final Sat.: 1751 4876 137 3466 4660 412 408 1881 1583 229 1625 1583

Capacity Analysis Module:  
Vol/Sat: 0.13 0.40 0.40 0.11 0.26 0.26 0.25 0.25 0.03 0.28 0.28 0.25  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.11 0.43 0.43 0.16 0.48 0.48 0.27 0.27 0.38 0.27 0.27 0.43  
Volume/Cap: 1.17 0.94 0.94 0.69 0.53 0.53 0.93 0.93 0.09 1.03 1.03 0.57  
Delay/Veh: 164.3 32.9 32.9 46.6 15.3 15.3 57.4 57.4 20.2 83.3 83.3 25.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 164.3 32.9 32.9 46.6 15.3 15.3 57.4 57.4 20.2 83.3 83.3 25.0  
LOS by Move: F C C D B B E C F F C  
HCM2kAvgQ: 11 20 20 5 7 7 13 13 1 23 23 9

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1050 Junipero Serra / Winston / Mercedes  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.639  
Loss Time (sec): 14 Average Delay (sec/veh): 35.7  
Optimal Cycle: 100 Level Of Service: D

Street Name: Junipero Serra Winston / Mercedes  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Protected Protected Protected Protected Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 19 40 40 19 40 40 27 27 27 27 27 27  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 0 1 0 1

Volume Module:  
Base Vol: 186 1681 29 103 1024 72 80 63 73 64 147 62  
Growth Adj: 1.07 1.14 1.16 1.14 1.09 1.05 1.16 1.19 1.14 1.05 1.00 1.07  
Initial Bse: 199 1911 34 117 1118 75 93 75 83 67 147 66  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 199 1911 34 117 1118 75 93 75 83 67 147 66  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97  
PHF Volume: 205 1970 35 121 1153 78 96 77 86 69 152 68  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 205 1970 35 121 1153 78 96 77 86 69 152 68  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 205 1970 35 121 1153 78 96 77 86 69 152 68

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.93 0.89 0.89 0.93 0.88 0.88 0.59 0.98 0.83 0.69 0.98 0.83  
Lanes: 1.00 2.95 0.05 1.00 2.81 0.19 1.00 1.00 1.00 1.00 1.00 1.00  
Final Sat.: 1769 4980 88 1769 4720 318 1125 1862 1583 1315 1862 1583

Capacity Analysis Module:  
Vol/Sat: 0.12 0.40 0.40 0.07 0.24 0.24 0.09 0.04 0.05 0.05 0.08 0.04  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.19 0.40 0.40 0.19 0.40 0.40 0.27 0.27 0.27 0.27 0.27 0.27  
Volume/Cap: 0.61 0.99 0.99 0.36 0.61 0.61 0.32 0.15 0.20 0.19 0.30 0.16  
Delay/Veh: 45.1 44.1 44.1 38.2 22.7 22.7 31.8 28.4 29.2 29.3 30.5 28.6  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 45.1 44.1 44.1 38.2 22.7 22.7 31.8 28.4 29.2 29.3 30.5 28.6  
LOS by Move: D D D D C C C C C C C C  
HCM2kAvgQ: 5 24 24 3 10 2 2 2 2 2 2 2

Note: Queue reported is the number of cars per lane.

Tier 1 AM		Mon Jan 4, 2010 09:05:39				Page 8-1			
-----									
		19th Ave CS		Tier 1					
-----									
Level of Service Computation Report									
2000 HCM Operations Method (Future Volume Alternative)									
*****									
Intersection #1060 Junipero Serra / Holloway									
*****									
Cycle (sec):	100	Critical Vol./Cap.(X):				0.683			
Loss Time (sec):	14	Average Delay (sec/veh):				33.2			
Optimal Cycle:	100	Level of Service:				C			
*****									
Street Name:		Junipero Serra		Holloway					
Approach:		North Bound		South Bound		East Bound		West Bound	
Movement:		L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:		Protected		Protected		Permitted		Permitted	
Rights:		Include		Include		Include		Include	
Min. Green:		19	39	39	19	39	28	28	28
Y+R:		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
*Lanes:		1	0	2	1	0	1	0	1
-----									
Volume Module:									
Base Vol:		234	1520	60	114	956	84	163	106
Growth Adj:		1.08	1.14	1.07	1.05	1.09	1.06	1.07	1.01
Initial Bse:		253	1728	64	120	1044	89	175	107
Added Vol:		0	0	0	0	0	0	0	0
PasserByVol:		0	0	0	0	0	0	0	0
Initial Fut:		253	1728	64	120	1044	89	175	107
User Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:		261	1781	66	124	1076	92	180	110
Reduc Vol:		0	0	0	0	0	0	0	0
Reduced Vol:		261	1781	66	124	1076	92	180	110
PCE Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:		261	1781	66	124	1076	92	180	110
-----									
Saturation Flow Module:									
Sat/Lane:		1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:		0.93	0.89	0.89	0.93	0.88	0.88	0.62	0.98
Lanes:		1.00	2.89	0.11	1.00	2.76	0.24	1.00	1.00
Final Sat:		1769	4876	182	1769	4628	394	1184	1862
-----									
Capacity Analysis Module:									
Vol/Sat:		0.15	0.37	0.37	0.07	0.23	0.23	0.15	0.06
Crit Moves:		****				****			
Green/Cycle:		0.19	0.39	0.39	0.19	0.39	0.39	0.28	0.28
Volume/Cap:		0.78	0.94	0.94	0.37	0.60	0.60	0.54	0.21
Delay/Veh:		54.5	36.5	36.5	38.3	23.3	23.3	36.9	28.5
User DelAdj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:		54.5	36.5	36.5	38.3	23.3	23.3	36.9	28.5
LOS by Move:		D	D	D	D	C	C	D	C
HCM2kAVGQ:		7	19	19	3	9	5	3	3
*****									

Tier 1 AM		Mon Jan 4, 2010 09:05:39				Page 9-1	
		19th Ave CS					
		Tier 1					
Level of Service Computation Report							
2000 HCM Operations Method (Future Volume Alternative)							
Intersection #1070 Junipero Serra / 19th							
Cycle (sec):	90	Critical Vol./Cap.(X):		0.951			
Loss Time (sec):	0	Average Delay (sec/veh):		96.4			
Optimal Cycle:	180	Level of Service:		F			
*****							
Street Name:		Junipero Serra		19th			
Approach:		North Bound		South Bound		East Bound West Bound	
Movement:		L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:		Split Phase		Split Phase		Permitted Permitted	
Rights:		Include		Ignore		Ovl	
Min. Green:		46 46 46	18 18 18	9 9 9	9 9 9	9 9 9	9 9 9
Y+R:		17.0 17.0 17.0	17.0 17.0 17.0	17.0 17.0 17.0	17.0 17.0 17.0	17.0 17.0 17.0	17.0 17.0 17.0
Lanes:		2 1 0 1 0	0 1 2 1 0	0 0 1 0 3	1 0 0 1 0	1 0 0 1 0	1 0 0 1 0
*****							
Volume Module:							
Base Vol:		2208 1679	8 0 1210	4 0 71	3047	32 56	62
Growth Adj:		1.13 1.14	1.12 1.10 1.09	1.11 1.12 1.10	1.10 1.11 1.12	1.12 1.13	
Initial Bse:		2494 1908	9 0 1321	4 0 78	3345	35 63	70
Added Vol:		0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0
PasserByVol:		0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0
Initial Fut:		2494 1908	9 0 1321	4 0 78	3345	35 63	70
User Adj:		1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00
PHF Adj:		0.97 0.97	0.97 0.97 0.97	0.97 0.97 0.97	0.97 0.97 0.97	0.97 0.97 0.97	0.97
PHF Volume:		2571 1967	9 0 1362	0 0 81	3449	37 65	72
Reduced Vol:		0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0
Reduced Vol:		2571 1967	9 0 1362	0 0 81	3449	37 65	72
PCE Adj:		1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00
MLF Adj:		1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00
FinalVolume:		2571 1967	9 0 1362	0 0 81	3449	37 65	72
*****							
Saturation Flow Module:							
Sat/Lane:		1900 1900	1900 1900 1900	1900 1900	1900 1900	1900 1900	1900
Adjustment:		0.97 0.91	0.91 0.91 0.89	0.91 1.00 0.98	0.81 0.44 0.90	0.90 0.90	
Lanes:		2.20 1.79	0.01 0.00 4.00	0.00 0.00 1.00	3.00 1.00 0.47	0.53	
Final Sat:		4035 3088	15 0 6778	0 0 1862	4596 827 811	904	
*****							
Capacity Analysis Module:							
Vol/Sat:		0.64 0.64	0.64 0.00 0.20	0.00 0.00 0.04	0.75 0.04 0.08	0.08	
Crit Moves:		0.51 0.51	0.51 0.20 0.20	0.10 0.10 0.10	0.67 0.10 0.10	0.10	
Green/Cycle:		1.25 1.25	1.25 0.00 1.00	0.00 0.00 0.43	1.13 0.44 0.80	0.80	
Volume/Cap:		131.1 131.1	0.0 61.6 0.0	0.0 45.3 67.1	54.3 70.6 70.6	70.6	
Delay/Veh:		131.1 131.1	0.0 61.6 0.0	0.0 45.3 67.1	54.3 70.6 70.6	70.6	
User DelAdj:		1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00	
AdjDel/Veh:		131.1 131.1	0.0 61.6 0.0	0.0 45.3 67.1	54.3 70.6 70.6	70.6	
LOS by Move:		F F F	A A A	A D E	D E E	E	
HCM2kAvgQ:		67 61	0 14 0	0 0 3	57 2 6	6	
*****							

19th Ave CS  
Tier 1

## Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1080 Junipero Serra / I-280 NB On-Ramp / John Daly

Cycle (sec): 125 Critical Vol./Cap.(X): 0.796  
Loss Time (sec): 12 Average Delay (sec/veh): 40.4  
Optimal Cycle: 81 Level Of Service: DStreet Name: Junipero Serra / I-280 NB On-Ramp John Daly  
Approach: North Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R

Control:	Split Phase	Split Phase	Split Phase	Split Phase
Rights:	Ovl	Include	Ovl	
Min. Green:	6 6 6	31 31 31	6 6 6	6
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	2 0 1 1 1	1 0 0 1 1	2 1 0 1 1	1 1 2 0 1

## Volume Module:

Base Vol:	337	335	364	104	169	262	665	779	99	59	746	303
Growth Adj:	1.05	1.12	1.14	1.00	1.00	1.00	1.14	1.16	1.00	1.00	1.00	1.05
Initial Bse:	354	374	414	104	169	262	756	902	99	59	746	318
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	354	374	414	104	169	262	756	902	99	59	746	318
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	364	386	427	107	174	270	780	930	102	61	769	328
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	364	386	427	107	174	270	780	930	102	61	769	328
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	364	386	427	107	174	270	780	930	102	61	769	328

## Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.86	0.86	0.93	0.89	0.89	0.88	0.90	0.90	0.89	0.89	0.83
Lanes:	2.00	1.42	1.58	1.00	0.78	1.22	2.00	2.00	1.00	1.00	3.00	1.00
Final Sat:	3432	2320	2567	1769	1327	2058	3333	3436	1718	1688	5063	1583

## Capacity Analysis Module:

Vol/Sat:	0.11	0.17	0.17	0.06	0.13	0.13	0.23	0.27	0.06	0.04	0.15	0.21
Crit Moves:	***	***	***	***	***	***	***	***	***	***	***	***
Green/Cycle:	0.21	0.21	0.40	0.16	0.16	0.50	0.34	0.34	0.34	0.19	0.19	0.36
Volume/Cap:	0.51	0.80	0.42	0.37	0.80	0.26	0.69	0.80	0.17	0.19	0.80	0.58
Delay/Veh:	44.4	51.4	27.2	47.2	58.0	17.7	36.4	39.4	29.0	42.5	52.6	34.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	44.4	51.4	27.2	47.2	58.0	17.7	36.4	39.4	29.0	42.5	52.6	34.3
LOS by Move:	D	D	C	D	E	B	D	D	C	D	D	C
HCM2kAvgQ:	7	12	8	4	10	5	14	17	3	2	12	11

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 1

## Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1090 Junipero Serra / I-280 SB On-Ramp / John Daly

Cycle (sec): 120 Critical Vol./Cap.(X): 0.574  
Loss Time (sec): 8 Average Delay (sec/veh): 20.5  
Optimal Cycle: 37 Level Of Service: CStreet Name: Junipero Serra / I-280 SB On-Ramp John Daly  
Approach: North Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R

Control:	Split Phase	Split Phase	Split Phase	Split Phase
Rights:	Ovl	Include	Include	
Min. Green:	0 0 0	0 0 0	0 0 0	0 0 0
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 0 2	0 0 0 0	0 0 2 1	2 0 2 0

## Volume Module:

Base Vol:	0	0	316	0	0	0	0	1227	419	439	1001	0
Growth Adj:	1.02	1.00	1.01	1.13	1.23	1.13	1.01	1.03	1.13	1.13	1.03	1.02
Initial Bse:	0	0	320	0	0	0	0	1261	472	564	1035	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	320	0	0	0	0	1261	472	564	1035	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	0	0	330	0	0	0	0	1300	487	581	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	330	0	0	0	0	1300	487	581	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	330	0	0	0	0	1300	487	581	0	0

## Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	0.73	1.00	1.00	1.00	1.00	0.86	0.86	0.90	0.95	1.00
Lanes:	0.00	0.00	2.00	0.00	0.00	0.00	0.00	2.18	0.82	2.00	2.00	0.00
Final Sat:	0	0	2786	0	0	0	0	3547	1328	3432	3610	0

## Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.37	0.37	0.17	0.00	0.00
Crit Moves:	***	***	***	***	***	***	***	***	***	***	***	***
Green/Cycle:	0.00	0.00	0.29	0.00	0.00	0.00	0.00	0.64	0.64	0.29	0.00	0.00
Volume/Cap:	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.57	0.57	0.29	0.00	0.00
Delay/Veh:	0.0	0.0	34.2	0.0	0.0	0.0	0.0	12.6	12.6	36.7	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	34.2	0.0	0.0	0.0	0.0	12.6	12.6	36.7	0.0	0.0
LOS by Move:	A	A	C	A	A	A	A	B	B	A	A	A
HCM2kAvgQ:	0	0	6	0	0	0	0	14	14	9	0	0

Note: Queue reported is the number of cars per lane.



Tier 1 AM		Mon Jan 4, 2010 09:05:40				Page 14-1			
-----									
19th Ave CS									
Tier 1									
-----									
Level Of Service Computation Report									
2000 HCM Operations Method (Future Volume Alternative)									
*****									
Intersection #1110 19th / Sloat									
*****									
Cycle (sec):	90	Critical Vol./Cap.(X):				1.475			
Loss Time (sec):	9	Average Delay (sec/veh):				111.3			
Optimal Cycle:	180	Level Of Service:				F			
*****									
Street Name: 19th Sloat									
Approach:	North Bound		South Bound		East Bound		West Bound		
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Permitted	Protected	Permitted+Prot	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted
Rights:	Include	Include	Include	Include	Include	Include	Include	Include	Include
Min. Green:	33 33 33 12 49 49	4 32 32	32 23 23	23 23 23	23 23 23	23 23 23	23 23 23	23 23 23	23 23 23
Y+R:	10.0 10.0 10.0 10.0 10.0 10.0	10.0 10.0 10.0	10.0 10.0 10.0	10.0 10.0 10.0	10.0 10.0 10.0	10.0 10.0 10.0	10.0 10.0 10.0	10.0 10.0 10.0	10.0 10.0 10.0
Lanes:	0 0 2 1 0 1 0 2 1 0 1 1 1 0 0 0 3 0 1	-----							
-----									
Volume Module:									
Base Vol:	0 1964 25 312 2778	127 247 1029	62 0 873	403					
Growth Adj:	1.16 1.14 1.16 1.14 1.09 1.14	1.16 1.19 1.14	1.14 1.14 1.19	1.16					
Initial Bse:	0 2232 29 355 3034	145 287 1221	71 0 1036	468					
Added Vol:	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0					
PasserByVol:	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0					
Initial Fut:	0 2232 29 355 3034	145 287 1221	71 0 1036	468					
User Adj:	1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00					
PHF Adj:	0.97 0.97 0.97 0.97 0.97 0.97	0.97 0.97 0.97	0.97 0.97 0.97	0.97					
PHF Volume:	0 2301 30 366 3127	149 296 1259	73 0 1068	483					
Reduct Vol:	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0					
Reduced Vol:	0 2301 30 366 3127	149 296 1259	73 0 1068	483					
PCE Adj:	1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00					
MLF Adj:	1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00					
FinalVolume:	0 2301 30 366 3127	149 296 1259	73 0 1068	483					
-----									
Saturation Flow Module:									
Sat/Lane:	1900 1900	1900 1900 1900	1900 1900	1900					
Adjustment:	1.00 0.89 0.89 0.93 0.89	0.89 0.58 0.88	0.88 1.00 0.89	0.83					
Lanes:	0.00 2.96 0.04 1.00 2.86	0.14 1.00 2.84	0.16 0.00 3.00	1.00					
Final Sat.:	0 5008 65 1769 4818	230 1094 4729	274 0 5083	1583					
-----									
Capacity Analysis Module:									
Vol/Sat:	0.00 0.46 0.46 0.21 0.65	0.65 0.27 0.27	0.27 0.00 0.21	0.30					
Crit Moves:	0.00 0.37 0.37 0.15 0.52	0.52 0.38 0.38	0.38 0.00 0.26	0.26					
Green/Cycle:	0.00 0.37 0.37 0.15 0.52	0.52 0.38 0.38	0.38 0.00 0.26	0.26					
Volume/Cap:	0.00 1.25 1.25 1.38 1.26	1.26 0.75 0.69	0.69 0.00 0.82	1.19					
Delay/Veh:	0.0 145 145.0 233.2 135	135.2 36.0 25.0	25.0 0.0 37.5	142.2					
User DelAdj:	1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00					
AdjDel/Veh:	0.0 145 145.0 233.2 135	135.2 36.0 25.0	25.0 0.0 37.5	142.2					
LOS by Move:	A F F F F	F F F D C	C A D F	F					
HCM2RAvgQ:	0 45 45 25 65	65 10 12	12 0 13	26					
*****									
Note: Queue reported is the number of cars per lane.									
*****									

Tier 1 AM		Mon Jan 4, 2010 09:05:39				Page 13-1															
		19th Ave CS																			
		Tier 1																			
Level Of Service Computation Report																					
2000 HCM Operations Method (Future Volume Alternative)																					
*****																					
Intersection #100 19th / Taraval																					
*****																					
Cycle (sec):	90	Critical Vol./Cap.(X):				0.823															
Loss Time (sec):	10	Average Delay (sec/veh):				26.9															
Optimal Cycle:	89	Level Of Service:				C															
*****																					
Street Name:		19th		Taraval																	
Approach:		North Bound		South Bound		East Bound		West Bound													
Movement:		L	-	T	-	R	L	-	T	-	R	L	-	T	-	R					
Control:		Permitted		Permitted		Permitted		Permitted		Permitted		Permitted		Permitted		Permitted					
Rights:		Include		Include		Include		Include		Include		Include		Include		Include					
Min. Green:		56	56	56	56	56	56	23	23	23	23	23	23	23	23	23	23				
Y+R:		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
*Lanes:		0	0	2	1	0	0	1	1	0	0	1	0	1	0	1	0				
*****																					
Volume Module:		-----																			
Base Vol:		0	2276	57	2	2656	58	2	201	50	0	228	50								
Growth Adj:		1.10	1.14	1.06	1.04	1.09	1.08	1.06	1.00	1.04	1.08	1.07	1.10								
Initial Bse:		0	2587	61	2	2900	63	2	201	52	0	244	55								
Added Vol:		0	0	0	0	0	0	0	0	0	0	0	0								
PasserByVol:		0	0	0	0	0	0	0	0	0	0	0	0								
Initial Fut:		0	2587	61	2	2900	63	2	201	52	0	244	55								
User Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97								
PHF Volume:		0	2667	62	2	2990	65	2	207	54	0	252	57								
Reduc Vol:		0	0	0	0	0	0	0	0	0	0	0	0								
Reduced Vol:		0	2667	62	2	2990	65	2	207	54	0	252	57								
PCE Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
MLF Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
FinalVolume:		0	2667	62	2	2990	65	2	207	54	0	252	57								
-----										-----											
Saturation Flow Module:		-----																			
Sat/Lane:		1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900								
Adjustment:		1.00	0.89	0.89	0.84	0.84	0.84	0.86	0.86	0.86	0.95	0.90	0.90								
Lanes:		0.00	2.93	0.07	0.01	2.93	0.06	0.02	1.57	0.41	0.00	1.63	0.37								
Final Sat.:		0	4952	116	3	4660	101	27	2571	665	0	2805	634								
-----										-----											
Capacity Analysis Module:		-----																			
Vol/Sat:		0.00	0.54	0.54	0.64	0.64	0.64	0.08	0.08	0.08	0.00	0.09	0.09								
Crit Moves:		****																			
Green/Cycle:		0.00	0.63	0.63	0.63	0.63	0.63	0.26	0.26	0.26	0.00	0.26	0.26								
Volume/Cap:		0.00	0.85	0.85	1.01	1.01	1.01	0.32	0.32	0.32	0.00	0.35	0.35								
Delay/Veh:		0.0	16.2	16.2	36.2	36.2	36.2	28.1	28.1	28.1	0.0	28.5	28.5								
User DelAdj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
AdjDel/Veh:		0.0	16.2	16.2	36.2	36.2	36.2	28.1	28.1	28.1	0.0	28.5	28.5								
LOS by Move:		A	B	B	D	D	D	C	C	C	A	C	C								
HCM2KAvQ:		0	25	25	41	41	41	3	3	3	0	4	4								
*****										*****											
Note: Queue reported is the number of cars per lane.																					

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1120 19th / Ocean  
Cycle (sec): 90 Critical Vol./Cap.(X): 1.101  
Loss Time (sec): 9 Average Delay (sec/veh): 46.9  
Optimal Cycle: 180 Level Of Service: D

Street Name: 19th Ocean		North Bound			South Bound			East Bound			West Bound		
Approach:		L	-	T	-	R		L	-	T	-	R	
Movement:		L	-	T	-	R		L	-	T	-	R	
Control:		Permitted		Permitted		Permitted		Permitted		Permitted		Permitted	
Rights:		WideBypass		WideBypass		WideBypass		Include		Include		Include	
Min. Green:	54	54	54	54	54	54	26	26	26	26	26	26	26
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	1	1	0	0	0	2	1	0	1	0	0	1

Volume Module:													
Base Vol:	2	1809	45	0	2766	187	83	274	47	21	230	157	
Growth Adj:	1.16	1.14	1.16	1.14	1.09	1.14	1.16	1.19	1.14	1.14	1.19	1.16	
Initial Bse:	2	2056	52	0	3020	213	96	325	54	24	273	182	
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0	
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0	
Initial Fut:	2	2056	52	0	3020	213	96	325	54	24	273	182	
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
PHF Volume:	2	2120	54	0	3114	220	99	335	55	25	281	188	
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0	
Reduced Vol:	2	2120	54	0	3114	220	99	335	55	25	281	188	
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
FinalVolume:	2	2120	54	0	3114	220	99	335	55	25	281	188	

Saturation Flow Module:													
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
AdjAdjustment:	0.78	0.78	0.78	1.00	0.88	0.88	0.83	0.96	0.96	0.79	0.79	0.79	
Lanes:	0.01	2.92	0.07	0.00	2.80	0.20	1.00	0.86	0.14	0.05	0.57	0.38	
Final Sat.:	5	4330	110	0	4701	332	1575	1565	258	75	856	572	

Capacity Analysis Module:													
Vol/Sat:	0.49	0.49	0.49	0.00	0.66	0.66	0.06	0.21	0.21	0.33	0.33	0.33	
Crit Moves:													
Green/Cycle:	0.60	0.60	0.60	0.60	0.60	0.60	0.29	0.29	0.29	0.29	0.29	0.29	
Volume/Cap:	0.82	0.82	0.82	0.00	1.10	1.10	0.21	0.73	0.73	1.12	1.12	1.12	
Delay/Veh:	11.0	11.0	11.0	0.0	62.8	62.8	25.0	36.9	36.9	109.9	110	109.9	
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
AdjDel/Veh:	11.0	11.0	11.0	0.0	62.8	62.8	25.0	36.9	36.9	109.9	110	109.9	
LOS by Move:	B	B	B	B	A	E	C	D	D	F	F	F	
HCM2KAVGQ:	14	14	14	0	46	46	2	10	10	24	24	24	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1130 19th / Eucalyptus  
Cycle (sec): 90 Critical Vol./Cap.(X): 0.840  
Loss Time (sec): 9 Average Delay (sec/veh): 22.7  
Optimal Cycle: 90 Level Of Service: C

Street Name: 19th Eucalyptus		North Bound			South Bound			East Bound			West Bound		
Approach:		L	-	T	-	R		L	-	T	-	R	
Movement:		L	-	T	-	R		L	-	T	-	R	
Control:		Permitted		Permitted		Permitted		Permitted		Permitted		Permitted	
Rights:		Include		Include		Include		Include		Include		Include	
Min. Green:	56	56	56	56	56	56	25	25	25	25	25	25	
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lanes:	0	0	2	1	0	0	2	1	0	1	1	0	

Volume Module:													
Base Vol:	0	1848	21	0	2818	58	74	125	90	10	148	14	
Growth Adj:	1.16	1.14	1.16	1.14	1.09	1.14	1.16	1.19	1.14	1.14	1.19	1.16	
Initial Bse:	0	2100	24	0	3077	66	86	148	103	11	176	16	
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0	
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0	
Initial Fut:	0	2100	24	0	3077	66	86	148	103	11	176	16	
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
PHF Volume:	0	2165	25	0	3172	68	89	153	106	12	181	17	
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0	
Reduced Vol:	0	2165	25	0	3172	68	89	153	106	12	181	17	
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
FinalVolume:	0	2165	25	0	3172	68	89	153	106	12	181	17	

Saturation Flow Module:													
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
AdjAdjustment:	1.00	0.89	0.89	1.00	0.89	0.89	0.68	0.68	0.68	0.95	0.95	0.95	
Lanes:	0.00	2.97	0.03	0.00	2.94	0.06	1.00	1.18	0.82	0.06	0.86	0.08	
Final Sat.:	0	5015	58	0	4961	107	1298	1535	1061	101	1554	144	

Capacity Analysis Module:													
Vol/Sat:	0.00	0.43	0.43	0.00	0.64	0.64	0.07	0.10	0.10	0.12	0.12	0.12	
Crit Moves:													
Green/Cycle:	0.62	0.62	0.62	0.62	0.62	0.62	0.28	0.28	0.28	0.28	0.28	0.28	
Volume/Cap:	0.00	0.69	0.69	0.00	1.03	1.03	0.24	0.35	0.35	0.41	0.41	0.41	
Delay/Veh:	0.0	7.1	7.1	0.0	32.4	32.4	25.2	26.7	26.7	28.6	28.6	28.6	
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
AdjDel/Veh:	0.0	7.1	7.1	0.0	32.4	32.4	25.2	26.7	26.7	28.6	28.6	28.6	
LOS by Move:	A	A	A	A	C	C	C	C	C	C	C	C	
HCM2KAVGQ:	0	10	10	0	36	36	2	3	3	5	5	5	

Note: Queue reported is the number of cars per lane.

Tier 1 AM Mon Jan 4, 2010 09:05:40 Page 17-1  
19th Ave CS  
Tier 1

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1140 19th / Winston

Cycle (sec): 90 Critical Vol./Cap.(X): 0.991  
Loss Time (sec): 13 Average Delay (sec/veh): 52.9  
Optimal Cycle: 159 Level of Service: D

Street Name: 19th Winston

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Include Permitted Permitted Permitted Permitted

Rights: Include Include AddLane Include Include Include

Min. Green: 15 43 43 43 43 43 43 43 18 18 18 18

Y+R: 13.0 13.0 13.0 13.0 13.0 13.0 13.0 13.0 13.0 13.0 13.0 13.0

Lanes: 2 0 2 1 0 0 0 3 0 1 1 1 0 1 0 1 0 1 0

Volume Module:

Base Vol: 386 1920 59 0 2985 60 56 164 171 51 291 28

Growth Adj: 1.06 1.14 1.00 1.00 1.09 1.04 1.00 1.00 1.00 1.04 1.00 1.06

Initial Bse: 409 2182 59 0 3260 62 56 164 171 53 291 30

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 409 2182 59 0 3260 62 56 164 171 53 291 30

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97

PHF Volume: 421 2250 61 0 3360 64 58 169 176 54 300 31

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 421 2250 61 0 3360 64 58 169 176 54 300 31

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 0.90 0.89 0.89 1.00 1.11 0.83 0.30 0.23 0.83 0.80 0.80 0.80

Lanes: 2.00 2.92 0.08 0.00 3.00 1.00 1.00 2.00 1.00 0.28 1.56 0.16

Final Sat.: 3432 4930 133 0 6354 1583 575 862 1583 430 2367 241

Capacity Analysis Module:

Vol/Sat: 0.12 0.46 0.46 0.00 0.53 0.04 0.10 0.20 0.11 0.13 0.13 0.13

Crit Moves: \*\*\*

Green/Cycle: 0.17 0.48 0.48 0.48 0.48 0.48 0.20 0.20 0.20 0.20 0.20 0.20

Volume/Cap: 0.74 0.96 0.96 0.00 1.11 0.08 0.50 0.98 0.56 0.63 0.63 0.63

Delay/Veh: 43.8 28.5 28.5 0.0 72.4 10.4 36.0 90.1 39.3 38.0 38.0 38.0

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 43.8 28.5 28.5 0.0 72.4 10.4 36.0 90.1 39.3 38.0 38.0 38.0

Los by Move: D C C A E B D F D D D D

HCM2kAvQ: 5 21 21 0 53 1 2 5 5 5 5 5

Note: Queue reported is the number of cars per lane.

Tier 1 AM Mon Jan 4, 2010 09:05:40 Page 18-1  
19th Ave CS  
Tier 1

Level of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1150 19th / Buckingham

Average Delay (sec/veh): 1.2 Worst Case Level of Service: F [ 60.8]

Street Name: 19th Buckingham

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Uncontrolled Uncontrolled

Rights: Include Include Include Include

Lanes: 0 0 3 0 0 0 0 3 0 1 0 0 0 1 0 0 0 0 0

Volume Module:

Base Vol: 0 2365 0 0 3145 61 0 0 122 0 0 0

Growth Adj: 1.00 1.14 1.04 1.02 1.09 1.00 1.04 1.00 1.02 1.00 1.00 1.00

Initial Bse: 0 2688 0 0 3434 61 0 0 124 0 0 0

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 2688 0 0 3434 61 0 0 124 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97

PHF Volume: 0 2771 0 0 3541 63 0 0 128 0 0 0

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

FinalVolume: 0 2771 0 0 3541 63 0 0 128 0 0 0

Critical Gap Module:

Critical Gap: 6.9 6.9 6.9 6.9 6.9 6.9 6.9 6.9 6.9 6.9 6.9 6.9

FollowUpTm: 3.3 3.3 3.3 3.3 3.3 3.3 3.3 3.3 3.3 3.3 3.3 3.3

Capacity Module:

Conflict Vol: 1180 1180 1180 1180 1180 1180 1180 1180 1180 1180 1180 1180

Potent Cap.: 183 183 183 183 183 183 183 183 183 183 183 183

Move Cap.: 183 183 183 183 183 183 183 183 183 183 183 183

Volume/Cap: 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70

Level of Service Module:

2Way95thQ: 4.3 4.3 4.3 4.3 4.3 4.3 4.3 4.3 4.3 4.3 4.3 4.3

Control Del: 60.8 60.8 60.8 60.8 60.8 60.8 60.8 60.8 60.8 60.8 60.8 60.8

LOS by Move: F F F F F F F F F F F F

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: 183 183 183 183 183 183 183 183 183 183 183 183

SharedQueue: 183 183 183 183 183 183 183 183 183 183 183 183

Shrd ConDel: 183 183 183 183 183 183 183 183 183 183 183 183

Shared LOS: 60.8 60.8 60.8 60.8 60.8 60.8 60.8 60.8 60.8 60.8 60.8 60.8

ApproachDel: 60.8 60.8 60.8 60.8 60.8 60.8 60.8 60.8 60.8 60.8 60.8 60.8

ApproachLOS: 60.8 60.8 60.8 60.8 60.8 60.8 60.8 60.8 60.8 60.8 60.8 60.8

Note: Queue reported is the number of cars per lane.





Tier 1 AM		Mon Jan 4, 2010 09:05:40				Page 22-1			
		19th Ave CS							
		Tier 1							
Level Of Service Computation Report									
2000 HCM Operations Method (Future Volume Alternative)									
Intersection #1190 Sunset / Taraval									
*****									
Cycle (sec):	60	Critical Vol./Cap.(X):				0.724			
Loss Time (sec):	10	Average Delay (sec/veh):				21.8			
Optimal Cycle:	60	Level Of Service:				C			
*****									
Street Name:		Sunset		Taraval					
Approach:	North Bound	South Bound		East Bound		West Bound			
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	
Control:	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	
Rights:	Include	Include	Include	Include	Include	Include	Include	Include	
Min. Green:	29 29 29	29 29 29	29 29 29	21 21 21	21 21 21	21 21 21	21 21 21	21 21 21	
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	
Lanes:	0 0 2 1 0	0 0 2 1 0	0 0 2 1 0	1 0 0 1 0	1 0 0 1 0	1 0 0 1 0	1 0 0 1 0	1 0 0 1 0	
*****									
Volume Module:									
Base Vol:	0 2021	17	0 1965	11	79 190	53	83 169	38	
Growth Adj:	1.10 1.12	1.06	1.05 1.08	1.08	1.06 1.01	1.05	1.08 1.08	1.10	
Initial Bse:	0 2254	18	0 2130	12	84 193	56	90 183	42	
Added Vol:	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	
PasserByVol:	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	
Initial Fut:	0 2254	18	0 2130	12	84 193	56	90 183	42	
User Adj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	
PHF Adj:	0.97 0.97	0.97	0.97 0.97	0.97	0.97 0.97	0.97	0.97 0.97	0.97	
PHF Volume:	0 2324	19	0 2196	12	87 199	57	93 188	43	
Reduct Vol:	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	
Reduced Vol:	0 2324	19	0 2196	12	87 199	57	93 188	43	
PCE Adj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	
MLF Adj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	
FinalVolume:	0 2324	19	0 2196	12	87 199	57	93 188	43	
*****									
Saturation Flow Module:									
Sat/Lane:	1900 1900	1900	1900 1900	1900	1900 1900	1900	1900 1900	1900	
Adjustment:	1.00 0.89	0.89	1.00 0.89	0.89	0.57 0.95	0.95	0.54 0.95	0.95	
Lanes:	0.00 2.98	0.02	0.00 2.98	0.02	1.00 0.78	0.22	1.00 0.81	0.19	
Final Sat:	0 5038	40	0 5050	28	1091 1396	403	1028 1473	337	
*****									
Capacity Analysis Module:									
Vol/Sat:	0.00 0.46	0.46	0.00 0.43	0.43	0.08 0.14	0.14	0.09 0.13	0.13	
Crit Moves:	****	****	****	****	****	****	****	****	
Green/Cycle:	0.00 0.48	0.48	0.00 0.48	0.48	0.35 0.35	0.35	0.35 0.35	0.35	
Volume/Cap:	0.00 0.95	0.95	0.00 0.90	0.90	0.23 0.41	0.41	0.26 0.36	0.36	
Delay/Veh:	0.0 25.1	25.1	0.0 20.0	20.0	15.1 16.7	16.7	15.7 16.2	16.2	
User DelAdj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	
AdjDel/Veh:	0.0 25.1	25.1	0.0 20.0	20.0	15.1 16.7	16.7	15.7 16.2	16.2	
LOS by Move:	A C C	A C C	A B B	B B B	B B B	B B B	B B B	B B B	
HCM2KavgQ:	0 22 22	22	0 18 18	18	1 4 4	4	1 3 3	3	
*****									
Note: Queue reported is the number of cars per lane.									

Note: Queue reported is the number of cars per lane.

Tier 1 AM		Mon Jan 4, 2010 09:05:40				Page 21-1										
		19th Ave CS														
		Tier 1														
		Level of Service Computation Report														
		2000 HCM Operations Method (Future Volume Alternative)														
		Intersection #181 Chumadero / Brotherhood														
Cycle (sec):		100		Critical Vol./Cap.(X):		0.973										
Loss Time (sec):		12		Average Delay (sec/veh):		99.6										
Optimal Cycle:		158		Level of Service:		F										
Street Name:		Chumadero		Brotherhood												
Approach:		North Bound		South Bound		East Bound		West Bound								
Movement:		L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:		Permitted		Permitted		Protected		Protected								
Rights:		Include		Include		Include		Include								
Min. Green:		20	20	20	20	20	20	21	47	47	21	47	47	21	47	11.0
Y+R:		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Lanes:		0	0	1	0	0	0	1	0	1	0	1	0	1	0	1
Volume Module:																
Base Vol:		28	16	99	119	26	54	26	1494	44	175	1656	168			
Growth Adj:		1.08	1.06	1.07	1.01	1.00	1.02	1.07	1.08	1.01	1.02	1.09	1.08			
Initial Bse:		30	17	106	121	26	55	28	1609	45	179	1812	181			
Added Vol:		0	0	0	0	0	0	0	0	0	0	0	0			
PasserByVol:		0	0	0	0	0	0	0	0	0	0	0	0			
Initial Fut:		30	17	106	121	26	55	28	1609	45	179	1812	181			
User Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
PHF Adj:		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
PHF Volume:		31	17	109	124	27	57	29	1659	46	185	1868	187			
Reduct Vol:		0	0	0	0	0	0	0	0	0	0	0	0			
Reduced Vol:		31	17	109	124	27	57	29	1659	46	185	1868	187			
PCE Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
MLF Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
FinalVolume:		31	17	109	124	27	57	29	1659	46	185	1868	187			
Saturation Flow Module:																
Sat/Lane:		1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Adjustment:		0.64	0.64	0.79	0.44	0.44	0.44	0.93	0.93	0.93	0.93	0.92	0.92			
Lanes:		0.23	0.13	0.64	0.60	0.13	0.27	1.00	1.95	0.05	1.00	1.82	0.18			
Final Sat:		276	155	969	496	107	227	1769	3429	95	1769	3171	317			
Capacity Analysis Module:																
Vol/Sat:		0.11	0.11	0.11	0.25	0.25	0.25	0.02	0.48	0.48	0.10	0.59	0.59			
Crit Moves:																
Green/Cycle:		0.20	0.20	0.20	0.20	0.20	0.20	0.21	0.47	0.47	0.21	0.47	0.47			
Volume/Cap:		0.56	0.56	0.56	1.25	1.25	1.25	0.08	1.03	1.03	0.50	1.25	1.25			
Delay/Veh:		44.0	44.0	44.0	194.4	194.4	194.4	32.1	51.5	51.5	39.5	141	140.5			
User DelAdj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
AdjDel/Veh:		44.0	44.0	44.0	194.4	194.4	194.4	32.1	51.5	51.5	39.5	141	140.5			
LOS by Move:		D	D	D	F	F	F	C	D	D	D	F	F			
HCM2KavgQ:		5	5	5	14	14	14	1	37	37	5	62	62			
								</								

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 1

## Level of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1200 Sunset / Ocean

Cycle (sec): 60 Critical Vol./Cap.(X): 0.612  
 Loss Time (sec): 9 Average Delay (sec/veh): 12.1  
 Optimal Cycle: 59 Level of Service: B

Street Name: Sunset Ocean  
 Approach: North Bound South Bound East Bound West Bound  
 Movement: L - T - R L - T - R L - T - R L - T - R  
 Control: Permitted Permitted Permitted Permitted  
 Rights: Include Include Include Include  
 Min. Green: 31 31 31 31 19 19 19 19  
 Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
 Lanes: 0 0 2 1 0 0 0 2 1 0 0 1 0 1 0 1

Volume Module:  
 Base Vol: 0 1318 12 0 1735 81 54 83 18 47 23 192  
 Growth Adj: 1.00 1.00 1.07 1.11 1.07 1.15 1.11 1.01 1.00 1.00  
 Initial Bse: 0 1318 13 0 1853 82 58 95 20 48 23 192  
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
 Initial Fut: 0 1318 13 0 1853 82 58 95 20 48 23 192  
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 PHF Adj: 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97  
 PHF Volume: 0 1359 13 0 1911 85 59 98 21 49 24 198  
 Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 FinalVolume: 0 1359 13 0 1911 85 59 98 21 49 24 198

Saturation Flow Module:  
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
 Adjustment: 1.00 0.89 0.89 1.00 0.89 0.87 0.87 0.87  
 Lanes: 0.00 2.97 0.03 0.00 2.87 0.13 0.33 0.55  
 Final Sat.: 0 5029 49 0 4839 214 550 907 190 1352 1862 1583

Capacity Analysis Module:  
 Vol/Sat: 0.00 0.27 0.27 0.00 0.39 0.39 0.11 0.11 0.11 0.04 0.01 0.13  
 Crit Moves: \*\*\*\*  
 Green/Cycle: 0.00 0.53 0.53 0.00 0.53 0.53 0.32 0.32 0.32 0.32 0.32  
 Volume/Cap: 0.00 0.51 0.51 0.00 0.74 0.74 0.34 0.34 0.34 0.11 0.04 0.39  
 Delay/Veh: 0.0 9.6 9.6 0.0 12.7 12.7 17.5 17.5 17.5 15.1 14.3 18.3  
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 AdjDel/Veh: 0.0 9.6 9.6 0.0 12.7 12.7 17.5 17.5 17.5 15.1 14.3 18.3  
 LOS by Move: A A A A B B B B B B B B  
 HCM2KAVGQ: 0 5 5 0 12 12 3 3 3 1 0 3

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 1

## Level of Service Computation Report

2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #1210 Skyline / Sloat / 39th

Cycle (sec): 100 Critical Vol./Cap.(X): 0.693  
 Loss Time (sec): 0 Average Delay (sec/veh): 17.2  
 Optimal Cycle: 0 Level of Service: C

Street Name: Skyline / 39th Sloat  
 Approach: North Bound South Bound East Bound West Bound  
 Movement: L - T - R L - T - R L - T - R L - T - R  
 Control: Stop Sign Stop Sign Stop Sign Stop Sign  
 Rights: Ignore Include Ignore Include  
 Min. Green: 0 0 0 0 0 0 0 0  
 Y+R: 0 1 0 0 2 0 0 0 1 0 0 1 0 1 0 1  
 Lanes: 0 1 0 0 2 0 0 0 1 0 0 1 0 1 0 1

Volume Module:  
 Base Vol: 251 0 646 0 14 7 1 331 194 341 280 60  
 Growth Adj: 1.19 1.41 1.35 1.15 1.00 1.00 1.35 1.29 1.15 1.00 1.00 1.19  
 Initial Bse: 299 0 872 0 14 7 1 427 222 341 280 72  
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
 Initial Fut: 299 0 872 0 14 7 1 427 222 341 280 72  
 User Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 PHF Adj: 0.97 0.97 0.00 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97  
 PHF Volume: 309 0 0 0 0 0 0 1 440 0 352 289 74  
 Reduced Vol: 309 0 0 0 0 0 0 0 0 0 0 0  
 PCE Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 MLF Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 FinalVolume: 309 0 0 0 0 0 0 1 440 0 352 289 74

Saturation Flow Module:  
 Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 Lanes: 1.00 0.00 2.00 0.00 0.67 0.33 0.01 1.99 1.00 2.00 1.59 0.41  
 Final Sat.: 446 0 1023 0 276 138 3 918 498 921 795 208

Capacity Analysis Module:  
 Vol/Sat: 0.69 xxxx 0.00 xxxx 0.05 0.05 0.48 0.48 0.00 0.38 0.36 0.35  
 Crit Moves: \*\*\*\*  
 Delay/Veh: 25.6 0.0 0.0 0.0 11.4 11.4 16.7 16.7 0.0 14.8 13.5 13.1  
 AdjDel/Veh: 25.6 0.0 0.0 0.0 11.4 11.4 16.7 16.7 0.0 14.8 13.5 13.1  
 LOS by Move: D \* \* B B C C \* B B B  
 ApproachDel: 25.6 11.4 16.7 16.7 14.1  
 Delay Adj: 1.00 1.00 1.00 1.00 1.00  
 AdjDel/Veh: 25.6 11.4 16.7 16.7 14.1  
 LOS by Appr: D B B B C  
 AllWayAVGQ: 1.9 1.9 0.0 0.0 0.0 0.0 0.8 0.8 0.0 0.6 0.5 0.5

Note: Queue reported is the number of cars per lane.



Tier 1 AM Mon Jan 4, 2010 09:05:40 Page 25-1  
19th Ave CS  
Tier 1

Level of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1221 Skyline / Lake Merced (WBR)  
\*\*\*\*\*  
Average Delay (sec/veh): 1.5 Worst Case Level of Service: C [15.2]  
\*\*\*\*\*

Street Name: Skyline Lake Merced (WBR)  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign  
Rights: Include Include Include Include  
Lanes: 0 0 2 0 0 1 0 2 0 0 0 0 0 0 0 0 0 0 1

Volume Module:  
Base Vol: 0 814 0 90 456 0 0 0 0 0 0 0 0 0 0 75  
Growth Adj: 1.23 1.42 1.30 1.09 1.00 1.02 1.30 1.18 1.09 1.02 1.04 1.23  
Initial Bse: 0 1156 0 98 456 0 0 0 0 0 0 0 0 0 0 92  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 1156 0 98 456 0 0 0 0 0 0 0 0 0 0 92  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97  
PHF Volume: 0 1192 0 101 470 0 0 0 0 0 0 0 0 0 0 95  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
FinalVolume: 0 1192 0 101 470 0 0 0 0 0 0 0 0 0 0 95

Critical Gap Module:  
Critical Gap: 4.1 xxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 6.9  
FollowUpFrim: 2.2 xxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 3.3

Capacity Module:  
Conflict Vol: 1192 xxx xxxxxx xxxxxx xxxxxx xxxxxx 596  
Potent Cap: 582 xxx xxxxxx xxxxxx xxxxxx xxxxxx 447  
Move Cap: 582 xxx xxxxxx xxxxxx xxxxxx xxxxxx 447  
Volume/Cap: 0.17 xxx xxxxxx xxxxxx xxxxxx xxxxxx 0.21

Level of Service Module:  
2Way95thQ: xxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 0.8  
Control Del: 12.5 xxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 15.2  
LOS by Move: B \* \* \* \* \*  
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Shared Cap: xxx xxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
SharedQueue: xxx xxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
Shrd ConDel: xxx xxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
Shared LOS: \* \* \* \* \*  
ApproachDel: xxxxxx xxxxxx 15.2  
ApproachLOS: \* \* \* \* \*  
Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

Tier 1 AM Mon Jan 4, 2010 09:05:40 Page 26-1  
19th Ave CS  
Tier 1

Level of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1222 Skyline / Lake Merced (WBLT)  
\*\*\*\*\*  
Average Delay (sec/veh): 1.5 Worst Case Level of Service: F [54.5]  
\*\*\*\*\*

Street Name: Skyline Lake Merced (WBLT)  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign  
Rights: Include Include Include Include  
Lanes: 1 0 1 1 0 0 0 2 0 1 0 0 0 0 1 0 1 0 0

Volume Module:  
Base Vol: 5 814 90 0 423 33 0 0 0 0 43 5 0  
Growth Adj: 1.23 1.42 1.30 1.09 1.00 1.02 1.30 1.18 1.09 1.02 1.04 1.23  
Initial Bse: 6 1155 117 0 424 34 0 0 0 0 44 5 0  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 6 1155 117 0 424 34 0 0 0 0 44 5 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97  
PHF Volume: 6 1191 121 0 437 35 0 0 0 0 45 5 0  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0  
FinalVolume: 6 1191 121 0 437 35 0 0 0 0 45 5 0

Critical Gap Module:  
Critical Gap: 4.1 xxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 6.8 6.5 xxxxxx  
FollowUpFrim: 2.2 xxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 3.5 4.0 xxxxxx

Capacity Module:  
Conflict Vol: 472 xxx xxxxxx xxxxxx xxxxxx xxxxxx 1482 1736 xxxxxx  
Potent Cap: 1086 xxx xxxxxx xxxxxx xxxxxx xxxxxx 116 87 xxxxxx  
Move Cap: 1086 xxx xxxxxx xxxxxx xxxxxx xxxxxx 115 86 xxxxxx  
Volume/Cap: 0.01 xxx xxxxxx xxxxxx xxxxxx xxxxxx 0.39 0.06 xxxxxx

Level of Service Module:  
2Way95thQ: 0.0 xxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 1.6 0.2 xxxxxx  
Control Del: 8.3 xxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 55.0 49.6 xxxxxx  
LOS by Move: A \* \* \* \* \*  
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Shared Cap: xxx xxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
SharedQueue: xxx xxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
Shrd ConDel: xxx xxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
Shared LOS: \* \* \* \* \*  
ApproachDel: xxxxxx xxxxxx 54.5  
ApproachLOS: \* \* \* \* \*  
Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

19th Ave CS  
Tier 1Level of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\* Intersection #1230 Sunset / Lake Merced \*\*\*\*\*

Average Delay (sec/veh): 2.1 Worst Case Level of Service: F[166.2]

\*\*\*\*\*

Street Name: Sunset Lake Merced  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - RControl: Uncontrolled Uncontrolled Stop Sign Stop Sign  
Rights: Ignore Ignore Ignore Ignore  
Lanes: 1 0 2 0 0 0 0 2 0 1 1 0 0 0 1 0 0 0

Volume Module:

Base Vol: 87 1279 0 0 1822 29 28 0 146 0 0 0 0  
Growth Adj: 1.01 1.00 1.02 1.07 1.09 1.06 1.02 1.06 1.07 1.06 1.04 1.01  
Initial Bse: 88 1279 0 0 1981 31 29 0 157 0 0 0 0  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 88 1279 0 0 1981 31 29 0 157 0 0 0 0  
User Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 0.00  
PHF Adj: 0.97 0.97 0.00 0.97 0.97 0.00 0.97 0.97 0.00 0.97 0.97 0.00  
PHF Volume: 91 1319 0 0 2042 0 30 0 0 0 0 0 0  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
FinalVolume: 91 1319 0 0 2042 0 30 0 0 0 0 0 0

Critical Gap Module:

Critical Gap: 4.1 xxx xxxxxx xxxxxx 4.8 xxxxxx 6.9 7.5 2.5 6.9  
FollowUpTim: 2.2 xxx xxxxxx xxxxxx 3.5 xxxxxx 3.3 3.5 4.0 3.3

Capacity Module:

Conflict Vol: 2042 xxx xxxxxx xxxxxx 2883 xxxxxx 1021 2521 3542 659  
Potent Cap: 272 xxx xxxxxx xxxxxx 64 xxxxxx 234 14 297 406  
Move Cap: 272 xxx xxxxxx xxxxxx 47 xxxxxx 234 10 198 406  
Volume/Cap: 0.33 xxx xxxxxx xxxxxx 0.63 xxxxxx 0.00 0.00 0.00 0.00

Level of Service Module:

2Way95thQ: 1.4 xxx xxxxxx xxxxxx 2.4 xxxxxx 166.2 xxxxxx xxxxxx xxxxxx  
Control Del: 24.7 xxx xxxxxx xxxxxx 166.2 xxxxxx xxxxxx xxxxxx xxxxxx

LOS by Move: C \* \* \* \* \* F \* \* \* \* \*

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap: xxx xxx xxxxxx xxx xxx xxxxxx xxx xxx xxxxxx xxx xxx

SharedQueue: xxx xxx xxxxxx xxx xxx xxxxxx xxx xxx xxxxxx xxx xxx

Shrd ConDel: xxx xxx xxxxxx xxx xxx xxxxxx xxx xxx xxxxxx xxx xxx

Shared LOS: \*

ApproachDel: xxxxxx 166.2 F xxxxxx

ApproachLOS: \*

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 1Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\* Intersection #1240 Lake Merced / Winston \*\*\*\*\*

Cycle (sec): 90 Critical Vol./Cap.(X): 0.698  
Loss Time (sec): 9 Average Delay (sec/veh): 29.2  
Optimal Cycle: 180 Level Of Service: C

\*\*\*\*\*

Street Name: Lake Merced Winston  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - RControl: Permitted Protected Include Split Phase  
Rights: WideBypass Include Include  
Min. Green: 34 34 17 55 55 0 0 0 25 25 25  
Y+R: 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0

Lanes: 0 0 2 1 0 2 0 2 0 0 0 0 2 0 0 1

Volume Module:

Base Vol: 0 1384 215 218 1789 0 0 0 0 196 0 181  
Growth Adj: 1.00 1.14 1.18 1.16 1.09 1.00 1.18 1.22 1.16 1.00 1.00  
Initial Bse: 0 1573 254 252 1954 0 0 0 0 196 0 181  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 1573 254 252 1954 0 0 0 0 196 0 181  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97

PHF Volume: 0 1622 262 260 2014 0 0 0 0 202 0 187

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 0 1622 262 260 2014 0 0 0 0 202 0 187

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.87 0.87 0.90 0.93 1.00 1.00 1.00 1.00 0.90 1.00

Lanes: 0.00 2.58 0.42 2.00 2.00 0.00 0.00 0.00 0.00 2.00 0.00

Final Sat: 0 4285 691 3432 3538 0 0 0 0 3432 0 1583

Capacity Analysis Module:

Vol/Sat: 0.00 0.38 0.38 0.08 0.57 0.00 0.00 0.00 0.00 0.06 0.00

Crit Moves: \*\*\*\*

Green/Cycle: 0.38 0.38 0.38 0.19 0.62 0.62 0.00 0.00 0.00 0.28 0.28

Volume/Cap: 0.00 0.99 0.99 0.39 0.92 0.00 0.00 0.00 0.00 0.21 0.00

Delay/Veh: 0.0 42.9 42.9 33.3 16.2 0.0 0.0 0.0 0.0 25.4 0.0

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 42.9 42.9 33.3 16.2 0.0 0.0 0.0 0.0 25.4 0.0

LOS by Move: A D D C B A A A A C A C

HCM2kAvgQ: 0 26 26 3 25 0 0 0 0 2 0 5

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

Tier 1 AM		Mon Jan 4, 2010 09:05:40				Page 29-1			
19th Ave CS									
Tier 1									
Level of Service Computation Report									
2000 HCM Operations Method (Future Volume Alternative)									
Intersection #1250 Lake Merced / Font									
*****									
Cycle (sec):	90	Critical Vol./Cap.(X):				0.753			
Loss Time (sec):	7	Average Delay (sec/veh):				64.6			
Optimal Cycle:	90	Level Of Service:				E			
*****									
Street Name:	Lake Merced		Font						
Approach:	North Bound	South Bound	East Bound	West Bound					
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Permitted	Protected	Split Phase	Split Phase	Include				
Rights:	Ignore	Include	Include	Include					
Min. Green:	43 43 43	15 61 61	0 0 0	0 0 0	22 0 22				
Y+R:	7.0 7.0 7.0	7.0 7.0 7.0	7.0 7.0 7.0	7.0 7.0 7.0	7.0 7.0 7.0	7.0 7.0 7.0	7.0 7.0 7.0	7.0 7.0 7.0	7.0 7.0 7.0
Lanes:	0 0 2 0 1	1 0 2 0 0	0 0 0 0 0	0 0 0 0 0	1 0 0 0 1				
*****									
Volume Module:									
Base Vol:	0 1746	48 147 1549	0 0 0	0 0 0	43 0 304				
Growth Adj:	1.09 1.14	1.07 1.05 1.09	1.07 1.07 1.01	1.05 1.07 1.04	1.09 1.09				
Initial Bse:	0 1985	51 154 1692	0 0 0	0 0 0	46 0 331				
Added Vol:	0 0	0 0 0	0 0 0	0 0 0	0 0 0				
PasserByVol:	0 0	0 0 0	0 0 0	0 0 0	0 0 0				
Initial Fut:	0 1985	51 154 1692	0 0 0	0 0 0	46 0 331				
User Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.97 0.97	0.97 0.97 0.97	0.97 0.97 0.97	0.97 0.97 0.97	0.97 0.97 0.97	0.97 0.97 0.97	0.97 0.97 0.97	0.97 0.97 0.97	0.97 0.97 0.97
PHF Volume:	0 2046	0 159 1744	0 0 0	0 0 0	47 0 341				
Reduced Vol:	0 0	0 0 0	0 0 0	0 0 0	0 0 0				
Reduced Vol:	0 2046	0 159 1744	0 0 0	0 0 0	47 0 341				
PCE Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
FinalVolume:	0 2046	0 159 1744	0 0 0	0 0 0	47 0 341				
*****									
Saturation Flow Module:									
Sat/Lane:	1900 1900	1900 1900 1900	1900 1900 1900	1900 1900 1900	1900 1900	1900 1900	1900 1900	1900 1900	1900 1900
Adjustment:	1.00 0.93	1.00 0.93 0.93	1.00 1.00 1.00	1.00 1.00 1.00	1.00 0.93 1.00	0.93 1.00 0.83	0.93 1.00 0.83	0.93 1.00 0.83	0.93 1.00 0.83
Lanes:	0.00 2.00	1.00 1.00 2.00	0.00 0.00 0.00	0.00 0.00 0.00	1.00 0.00 1.00	1.00 0.00 1.00	1.00 0.00 1.00	1.00 0.00 1.00	1.00 0.00 1.00
Final Sat:	0 3538	1900 1769 3538	0 0 0	0 0 0	1769 0 1583				
*****									
Capacity Analysis Module:									
Vol/Sat:	0.00 0.58	0.00 0.09 0.49	0.00 0.00 0.00	0.00 0.00 0.00	0.03 0.00 0.22				
Crit Moves:	0.48 0.48	0.48 0.17 0.68	0.00 0.00 0.00	0.00 0.00 0.00	0.24 0.24 0.24				
Green/Cycle:	0.00 1.21	0.00 0.54 0.73	0.00 0.00 0.00	0.00 0.00 0.00	0.11 0.00 0.88				
Volume/Cap:	0.00 119	0.00 41.2 5.1	0.00 0.0 0.0	0.00 0.0 0.0	0.0 26.9 0.0	56.6 0.0 56.6	56.6 0.0 56.6	56.6 0.0 56.6	56.6 0.0 56.6
Delay/Veh:	0.0 119	0.0 41.2 5.1	0.00 1.00 1.00	0.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
User DelAdj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	0.0 119	0.0 41.2 5.1	0.0 0.0 0.0	0.0 0.0 0.0	0.0 26.9 0.0	56.6 0.0 56.6	56.6 0.0 56.6	56.6 0.0 56.6	56.6 0.0 56.6
LOS by Move:	A F A	D A A	A A A	A A A	C A C	A E	A E	A E	A E
HCM2kAvgQ:	0 55	0 5 9	0 0 0	0 0 0	1 0 12				
*****									
Note: Queue reported is the number of cars per lane.									

Tier 1 AM		Mon Jan 4, 2010 09:05:40				Page 30-1			
19th Ave CS									
Tier 1									
Level Of Service Computation Report									
2000 HCM Operations Method (Future Volume Alternative)									
Intersection #1263 Lake Merced / Higuera									
Cycle (sec):		90		Critical Vol./Cap.(X):		0.786			
Loss Time (sec):		11		Average Delay (sec/veh):		98.9			
Optimal Cycle:		90		Level Of Service:		F			
Street Name: Lake Merced									
Approach:		North Bound		South Bound		East Bound		West Bound	
Movement:		L - T - R		L - T - R		L - T - R		L - T - R	
Control:		Permitted		Protected		Split Phase		Split Phase	
Rights:		Include		Include		Include		Include	
Min. Green:		41 41 41		11 59 59		0 0 0		20 20 20	
Y+R:		4.0 4.0 4.0		4.0 4.0 4.0		4.0 4.0 4.0		4.0 4.0 4.0	
Lanes:		0 0 1 1 0		1 0 2 0 0		0 0 0 0 0		1 0 0 0 1	
Volume Module:									
Base Vol:		0 1694		144 41 1601		0 0 0		77 0 58	
Growth Adj:		1.12 1.14		1.11 1.09 1.09		1.10 1.11 1.08		1.09 1.10 1.10	
Initial Bse:		0 1925		160 45 1748		0 0 0		84 0 65	
Added Vol:		0 0 0		0 0 0		0 0 0		0 0 0	
PasserByVol:		0 0 0		0 0 0		0 0 0		0 0 0	
Initial Fut:		0 1925		160 45 1748		0 0 0		84 0 65	
User Adj:		1.00 1.00		1.00 1.00		1.00 1.00		1.00 1.00	
PHF Adj:		0.97 0.97		0.97 0.97		0.97 0.97		0.97 0.97	
PHF Volume:		0 1985		165 46 1802		0 0 0		87 0 67	
Reduc Vol:		0 0 0		0 0 0		0 0 0		0 0 0	
Reduced Vol:		0 1985		165 46 1802		0 0 0		87 0 67	
PCE Adj:		1.00 1.00		1.00 1.00		1.00 1.00		1.00 1.00	
MLF Adj:		1.00 1.00		1.00 1.00		1.00 1.00		1.00 1.00	
FinalVolume:		0 1985		165 46 1802		0 0 0		87 0 67	
Saturation Flow Module:									
Sat/Lane:		1900 1900		1900 1900		1900 1900		1900 1900	
Adjustment:		1.00 0.92		0.92 0.93 0.93		1.00 1.00 1.00		1.00 0.93 1.00	
Lanes:		0.00 1.85		0.15 1.00 2.00		0.00 0.00 0.00		1.00 0.00 1.00	
Final Sat:		0 3228		268 1769 3538		0 0 0		1769 0 1583	
Capacity Analysis Module:									
Vol/Sat:		0.00 0.61		0.61 0.03 0.51		0.00 0.00 0.00		0.05 0.00 0.04	
Crit Moves:		0.46 0.46		0.46 0.12 0.66		0.00 0.00 0.00		0.22 0.22 0.22	
Green/Cycle:		0.00 1.35		1.35 0.21 0.78		0.00 0.00 0.00		0.22 0.00 0.19	
Volume/Cap:		0.0 182		182.0 37.8 7.2		0.0 0.0 0.0		0.0 29.9 0.0	
Delay/Veh:		1.00 1.00		1.00 1.00		1.00 1.00		1.00 1.00	
User DelAdj:		1.00 1.00		1.00 1.00		1.00 1.00		1.00 1.00	
AdjDel/Veh:		0.0 182		182.0 37.8 7.2		0.0 0.0 0.0		0.0 29.9 0.0	
LOS by Move:		A F A		F D A		A A A		C A C	
HCM2kAvgQ:		0 68		68 1 13		0 0 0		2 0 2	
Note: Queue reported is the number of cars per lane.									



19th Ave CS

Tier 1

## Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #1270 Lake Merced / BrotherhoodCycle (sec): 107 Critical Vol./Cap.(X): 2.124  
Loss Time (sec): 15 Average Delay (sec/veh): 100.3  
Optimal Cycle: 180 Level Of Service: F\*\*\*\*\*  
Street Name: Lake Merced Brotherhood

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Protected Include Split Phase Split Phase  
Rights: WideBypass Include Include  
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0  
Y+R: 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0  
Lanes: 0 0 2 0 1 2 0 1 0 0 0 0 0 1 0 0 0 1

## Volume Module:

Base Vol: 0 416 209 1478 225 0 0 0 0 139 0 1483  
Growth Adj: 1.13 1.14 1.29 1.26 1.09 1.11 1.29 1.44 1.26 1.11 1.12 1.13  
Initial Bse: 0 473 269 1868 246 0 0 0 0 154 0 1674  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 473 269 1868 246 0 0 0 0 154 0 1674  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97  
PHF Volume: 0 487 277 1926 0 0 0 0 0 159 0 1725  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 487 277 1926 0 0 0 0 0 159 0 1725  
ECE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 487 277 1926 0 0 0 0 0 159 0 1725

## Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.83 0.90 1.00 1.00 1.00 1.00 1.00 0.93 1.00 0.83  
Lanes: 0.00 2.00 1.00 2.00 1.00 0.00 0.00 0.00 0.00 1.00 0.00 1.00  
Final Sat: 0 3538 1583 3432 1900 0 0 0 0 1769 0 1583

## Capacity Analysis Module:

Vol/Sat: 0.00 0.14 0.18 0.56 0.00 0.00 0.00 0.00 0.00 0.09 0.00 1.09  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.21 0.21 0.21 0.43 0.68 0.00 0.00 0.00 0.22 0.22 1.00  
Volume/Cap: 0.00 0.67 0.85 1.31 0.00 0.00 0.00 0.00 0.40 0.00 1.09  
Delay/Veh: 0.0 44.0 64.4 168.7 0.0 0.0 0.0 0.0 38.3 0.0 51.4  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 44.0 64.4 168.7 0.0 0.0 0.0 0.0 38.3 0.0 51.4  
LOS by Move: A D E F A A A A A D A D  
HCM2KAVGQ: 0 9 11 63 0 0 0 0 0 5 0 26

Note: Queue reported is the number of cars per lane.

Tier 1 Conditions  
Weekday PM Peak Hour

19th Ave CS  
Tier 1

## Scenario Report

Tier 1 PM

Command: Default Command

Volume: Tier 1 PM

Geometry: Existing PM

Impact Fee: Default Impact Fee

Trip Generation: No Project's

Trip Distribution: PM

Paths: Tier 2/3

Routes: Tier 2/3

Configuration: Existing

19th Ave CS  
Tier 1Impact Analysis Report  
Level Of Service

Intersection

	Base Del/ LOS Veh C	V/ C	Future Del/ LOS Veh C	Change in
#1010 Claremont / Taraval / Dewey /	A	7.2 0.660	A	7.2 0.660 + 0.000 V/C
#1020 Santa Clara / Portola / Vicent	C	31.2 0.853	C	31.2 0.853 + 0.000 D/V
#1030 Junipero Serra / Sloat / West	F	104.5 1.125	F	104.5 1.125 + 0.000 D/V
#1040 Junipero Serra / Ocean / Euca	D	41.0 0.834	D	41.0 0.834 + 0.000 D/V
#1050 Junipero Serra / Winston / Mer	C	30.8 0.685	C	30.8 0.685 + 0.000 D/V
#1060 Junipero Serra / Holloway	C	30.7 0.700	C	30.7 0.700 + 0.000 D/V
#1070 Junipero Serra / 19th	F	115.7 1.249	F	137.8 1.249 +22.156 D/V
#1075 Junipero Serra / Chumasero	A	2.7 0.708	A	2.7 0.708 + 0.000 D/V
#1080 Junipero Serra / I-280 NB On-R	F	132.2 1.307	F	132.2 1.307 + 0.000 D/V
#1090 Junipero Serra / I-280 SB On-R	D	52.5 1.065	D	52.5 1.065 + 0.000 D/V
#1100 19th / Taraval	B	20.0 0.847	B	20.0 0.847 + 0.000 D/V
#1110 19th / Sloat	F	132.1 1.562	F	132.1 1.562 + 0.000 D/V
#1120 19th / Ocean	F	152.3 1.590	F	157.9 1.580 + 5.661 D/V
#1130 19th / Eucalyptus	E	72.8 1.090	E	72.7 1.090 -0.058 D/V
#1140 19th / Winston	F	100.5 1.336	F	100.5 1.336 + 0.000 D/V
#1150 19th / Buckingham	F	432.5 1.812	F	432.5 1.812 + 0.000 D/V
#1160 19th / Holloway	B	18.4 0.876	F	111.4 0.876 +93.035 D/V
#1170 19th / Crespi	D	53.7 0.852	D	53.7 0.852 + 0.000 D/V
#1181 Chumasero / Brotherhood	F	233.4 1.116	F	233.4 1.116 + 0.000 D/V
#1190 Sunset / Taraval	D	53.1 0.852	D	53.1 0.852 + 0.000 D/V
#1200 Sunset / Ocean	B	13.5 0.694	B	13.5 0.694 + 0.000 D/V
#1210 Skyline / Sloat / 39th	D	27.9 0.920	D	27.9 0.920 + 0.000 V/C
#1221 Skyline / Lake Merced (WBR)	C	17.7 0.424	C	17.7 0.424 + 0.000 D/V
#1222 Skyline / Lake Merced (WBLT)	F	125.5 0.924	F	125.5 0.924 + 0.000 D/V



Intersection	Base		Future		Change in
	Del/ LOS Veh	V/ C	Del/ LOS Veh	V/ C	
#1230 Sunset / Lake Merced	F OVRFL 1.370		F OVRFL 1.370		Nan D/V
#1240 Lake Merced / Winston	E 69.5 0.981		F 105.7 0.981		+36.186 D/V
#1250 Lake Merced / Font	D 49.2 0.791		D 49.7 0.791		+ 0.548 D/V
#1263 Lake Merced / Higuera	F 82.1 0.852		F 82.1 0.852		+ 0.000 D/V
#1270 Lake Merced / Brotherhood	F 143.8 2.455		F 143.8 2.455		-0.033 D/V

Level Of Service Computation Report											
FHWA Roundabout Method (Future Volume Alternative)											
Intersection #1010 Claremont / Taraval / Dewey / Kensington											
Average Delay (sec/veh): 7.2 Level Of Service: A											
Street Name: Claremont Taraval / Dewey											
Approach: North Bound South Bound East Bound West Bound											
Movement: L - T - R L - T - R L - T - R L - T - R											
Control: Yield Sign Yield Sign Yield Sign Yield Sign											
Lanes: 1 1 1 1											
Volume Module:											
Base Vol:	17	24	239	50	63	5	10	259	55	324	338
Growth Adj:	1.09	1.10	1.07	1.06	1.09	1.08	1.07	1.04	1.06	1.08	1.09
Initial Bse:	18	26	255	53	69	5	11	269	59	351	364
Added Vol:	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	18	26	255	53	69	5	11	269	59	351	364
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	19	27	263	55	71	6	11	277	60	362	375
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	19	27	263	55	71	6	11	277	60	362	375
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	19	27	263	55	71	6	11	277	60	362	375
PCE Module:											
AutoPCE:	19	27	263	55	71	6	11	277	60	362	375
TruckPCE:	0	0	0	0	0	0	0	0	0	0	0
ComboPCE:	0	0	0	0	0	0	0	0	0	0	0
BicyclePCE:	0	0	0	0	0	0	0	0	0	0	0
AdjVolume:	19	27	263	55	71	6	11	277	60	362	375
Delay Module: >> Time Period: 0.25 hours <<											
CircVolume:	343			756			487			57	
MaxVolume:	1015			792			937			1169	
PedVolume:	0			0			0			0	
AdjMaxVol:	1015			792			937			1169	
ApproachVol:	309			131			349			771	
ApproachV/C:	0.30			0.17			0.37			0.66	
ApproachDel:	5.1			5.4			6.1			8.8	
ApproachLOS:	A			A			A			A	
Queue:	1.3			0.6			1.7			5.3	

19th Ave CS  
Tier 1

## Level of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #1020 Santa Clara / Portola / Vicente  
\*\*\*\*\*Cycle (sec): 80  
Loss Time (sec): 11  
Optimal Cycle: 81  
Critical Vol./Cap.(X): 0.853  
Average Delay (sec/veh): 31.2  
Level Of Service: CStreet Name: Santa Clara / Vicente  
Approach: North Bound  
Movement: L - T - R L - T - R L - T - RControl: Permitted Include Protected  
Rights: 23 23 23 23 23 23 9 36 36 36  
Min. Green: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Y+R: 0 0 1 0 0 0 1 0 0 1 0 1 0  
Lanes: 0 0 1 0 0 0 1 0 0 1 0 1 0Volume Module:  
Base Vol: 22 273 85 191 48 48 1051 33 147 987 108  
Growth Adj: 1.03 1.00 1.03 1.07 1.03 1.10 1.07 1.07 1.10 1.03  
Initial Bse: 23 273 88 92 198 51 50 1155 35 157 1087 112  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 23 273 88 92 198 51 50 1155 35 157 1087 112  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97  
PHF Volume: 23 281 91 95 204 53 51 1191 36 162 1120 115  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 23 281 91 95 204 53 51 1191 36 162 1120 115  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 23 281 91 95 204 53 51 1191 36 162 1120 115Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.92 0.92 0.92 0.62 0.62 0.62 0.93 0.93 0.92 0.92  
Lanes: 0.06 0.71 0.23 0.27 0.58 0.15 1.00 1.94 0.06 1.00 1.81 0.19  
Final Sat.: 104 1247 401 320 688 179 1769 3419 104 1769 3163 325Capacity Analysis Module:  
Vol/Sat: 0.23 0.23 0.23 0.30 0.30 0.30 0.03 0.35 0.09 0.35 0.35  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.30 0.30 0.30 0.30 0.30 0.30 0.11 0.45 0.45 0.11 0.45 0.45  
Volume/Cap: 0.75 0.75 0.75 0.99 0.99 0.99 0.26 0.77 0.77 0.81 0.79 0.79  
Delay/Veh: 34.9 34.9 34.9 72.3 72.3 72.3 35.5 22.3 22.3 63.9 22.8 22.8  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 34.9 34.9 34.9 72.3 72.3 72.3 35.5 22.3 22.3 63.9 22.8 22.8  
LOS by Move: C C C E E D C C E C C  
HCM2kAvgQ: 11 11 11 14 14 14 1 15 15 6 16 16

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 1

## Level of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #1030 Junipero Serra / Sloat / West Portal / St. Francis  
\*\*\*\*\*Cycle (sec): 105  
Loss Time (sec): 16  
Optimal Cycle: 180  
Critical Vol./Cap.(X): 1.125  
Average Delay (sec/veh): 104.5  
Level Of Service: FStreet Name: Junipero Serra / West Portal  
Approach: North Bound  
Movement: L - T - R L - T - R L - T - RControl: Permitted Include Split Phase  
Rights: 16 53 53 32 32 32 15 15 15 20 20 20  
Min. Green: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Y+R: 3 0 1 0 0 0 2 1 0 3 0 1 0  
Lanes: 3 0 1 0 0 0 2 1 0 3 0 1 0Volume Module:  
Base Vol: 1027 1005 60 0 1045 261 852 420 471 20 405 10  
Growth Adj: 1.13 1.12 1.10 1.13 1.18 1.16 1.10 1.08 1.13 1.16 1.15 1.13  
Initial Bse: 1162 1121 66 0 1232 303 937 455 533 23 464 11  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 1162 1121 66 0 1232 303 937 455 533 23 464 11  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97  
PHF Volume: 1198 1156 68 0 1270 313 965 469 0 24 479 12  
Reduced Vol: 1198 1156 68 0 1270 313 965 469 0 24 479 12  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 1198 1156 68 0 1270 313 965 469 0 24 479 12Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.89 0.91 0.91 1.00 0.87 0.87 0.89 0.97 1.00 0.93 0.93 0.93  
Lanes: 3.00 1.89 0.11 0.00 2.41 0.59 3.00 1.00 1.00 0.09 1.86 0.05  
Final Sat.: 5096 3281 193 0 3996 985 5096 1843 1900 164 3276 80Capacity Analysis Module:  
Vol/Sat: 0.24 0.35 0.35 0.00 0.32 0.32 0.19 0.25 0.00 0.15 0.15 0.15  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.17 0.47 0.47 0.00 0.30 0.30 0.18 0.18 0.00 0.19 0.19 0.19  
Volume/Cap: 1.39 0.74 0.74 0.00 1.04 1.04 1.03 1.39 0.00 0.77 0.77 0.77  
Delay/Veh: 225.8 21.1 21.1 0.0 70.9 70.9 81.5 235 0.0 48.5 48.5 48.5  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 225.8 21.1 21.1 0.0 70.9 70.9 81.5 235 0.0 48.5 48.5 48.5  
LOS by Move: F C C A E F A D D  
HCM2kAvgQ: 27 15 15 0 27 27 17 33 0 10 10 10

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 1

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1040 Junipero Serra / Ocean / Eucalyptus  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.834  
Loss Time (sec): 14 Average Delay (sec/veh): 41.0  
Optimal Cycle: 100 Level Of Service: D  
\*\*\*\*\*

Street Name: Junipero Serra Ocean / Eucalyptus  
Approach: North Bound South Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Permitted Permitted  
Rights: Include Include Ovl Ovl  
Min. Green: 11 43 43 16 48 48 27 27 27 27 27 27 27 27  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 1 0 2 1 0 2 0 2 1 0 0 1 1 0 1 0 1 0 1

Volume Module:  
Base Vol: 176 1567 35 356 1065 96 140 356 58 77 332 333  
Growth Adj: 1.13 1.12 1.10 1.13 1.18 1.16 1.10 1.08 1.13 1.16 1.15 1.13  
Initial Bse: 199 1748 38 403 1255 112 154 386 66 90 381 377  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 199 1748 38 403 1255 112 154 386 66 90 381 377  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97  
PHF Volume: 205 1802 40 415 1294 115 159 398 68 92 393 388  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 205 1802 40 415 1294 115 159 398 68 92 393 388  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 205 1802 40 415 1294 115 159 398 68 92 393 388

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.92 0.97 0.88 0.90 0.88 0.88 0.62 0.62 0.83 0.80 0.80 0.83  
Lanes: 1.00 2.93 0.07 2.00 2.75 0.25 0.57 1.43 1.00 0.19 0.81 1.00  
Final Sat.: 1751 5389 119 3432 4612 410 672 1684 1583 289 1230 1583

Capacity Analysis Module:  
Vol/Sat: 0.12 0.33 0.33 0.12 0.28 0.28 0.24 0.24 0.04 0.32 0.32 0.25  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.11 0.43 0.43 0.16 0.48 0.48 0.27 0.27 0.38 0.27 0.27 0.43  
Volume/Cap: 1.07 0.78 0.78 0.76 0.58 0.58 0.87 0.87 0.11 1.18 1.18 0.57  
Delay/Veh: 127.7 23.6 23.6 49.5 16.0 16.0 50.3 50.3 20.5 140.7 141 25.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 127.7 23.6 23.6 49.5 16.0 16.0 50.3 50.3 20.5 140.7 141 25.0  
LOS by Move: F C C D B B D D C F F C  
HCM2kAvgQ: 8 16 14 6 8 8 12 12 1 27 27 9

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 1

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1050 Junipero Serra / Winston / Mercedes  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.685  
Loss Time (sec): 14 Average Delay (sec/veh): 30.8  
Optimal Cycle: 100 Level Of Service: C  
\*\*\*\*\*

Street Name: Junipero Serra Winston / Mercedes  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 19 40 40 19 40 40 27 27 27 27 27 27 27 27  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 0 1 0 1

Volume Module:  
Base Vol: 224 1516 52 85 1130 117 169 152 81 74 103 36  
Growth Adj: 1.05 1.12 1.11 1.15 1.18 1.08 1.11 1.11 1.15 1.08 1.00 1.05  
Initial Bse: 236 1691 58 97 1332 127 188 169 93 80 103 38  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 236 1691 58 97 1332 127 188 169 93 80 103 38  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97  
PHF Volume: 243 1743 60 100 1373 131 194 174 96 83 106 39  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 243 1743 60 100 1373 131 194 174 96 83 106 39  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 243 1743 60 100 1373 131 194 174 96 83 106 39

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.93 0.89 0.89 0.93 0.88 0.88 0.67 0.98 0.83 0.55 0.98 0.83  
Lanes: 1.00 2.90 0.10 1.00 2.74 0.26 1.00 1.00 1.00 1.00 1.00 1.00  
Final Sat.: 1769 4890 168 1769 4581 436 1275 1862 1583 1054 1862 1583

Capacity Analysis Module:  
Vol/Sat: 0.14 0.36 0.36 0.06 0.30 0.30 0.15 0.09 0.06 0.08 0.06 0.02  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.19 0.40 0.40 0.19 0.40 0.40 0.27 0.27 0.27 0.27 0.27 0.27  
Volume/Cap: 0.72 0.89 0.89 0.30 0.75 0.75 0.56 0.35 0.22 0.29 0.21 0.09  
Delay/Veh: 50.7 31.5 31.5 37.0 25.6 25.6 38.0 31.3 29.6 31.5 29.2 27.7  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 50.7 31.5 31.5 37.0 25.6 25.6 38.0 31.3 29.6 31.5 29.2 27.7  
LOS by Move: D C C D C D C C C C C  
HCM2kAvgQ: 7 19 19 2 14 14 5 4 2 2 3 1

Note: Queue reported is the number of cars per lane.



Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1060 Junipero Serra / Holloway  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.700  
Loss Time (sec): 14 Average Delay (sec/veh): 30.7  
Optimal Cycle: 100 Level of Service: C  
\*\*\*\*\*  
Street Name: Junipero Serra Holloway  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Protected Protected Protected Protected Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include Include Include Include Include  
Min. Green: 19 39 39 19 39 39 28 28 28 28 28 28  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 0 1 0 1

Volume Module:  
Base Vol: 183 1398 101 176 1001 104 117 140 23 143 96 107  
Growth Adj: 1.11 1.12 1.08 1.11 1.18 1.14 1.08 1.04 1.11 1.14 1.10 1.11  
Initial Bse: 202 1559 109 195 1180 118 126 145 25 163 105 118  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 202 1559 109 195 1180 118 126 145 25 163 105 118  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97  
PHF Volume: 209 1607 112 201 1216 122 130 149 26 168 108 122  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 209 1607 112 201 1216 122 130 149 26 168 108 122  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 209 1607 112 201 1216 122 130 149 26 168 108 122

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.93 0.88 0.88 0.93 0.88 0.88 0.67 0.98 0.83 0.60 0.98 0.83  
Lanes: 1.00 2.80 0.20 1.00 2.73 0.27 1.00 1.00 1.00 1.00 1.00 1.00  
Final Sat.: 1769 4705 328 1769 4556 457 1274 1862 1583 1141 1862 1583

Capacity Analysis Module:  
Vol/Sat: 0.12 0.34 0.34 0.11 0.27 0.27 0.10 0.08 0.02 0.15 0.06 0.08  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.19 0.39 0.39 0.19 0.39 0.39 0.28 0.28 0.28 0.28 0.28 0.28  
Volume/Cap: 0.62 0.88 0.88 0.60 0.68 0.68 0.36 0.29 0.06 0.52 0.21 0.28  
Delay/Veh: 45.5 31.4 31.4 44.6 24.9 24.9 31.7 29.6 26.6 36.4 28.4 29.6  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 45.5 31.4 31.4 44.6 24.9 24.9 31.7 29.6 26.6 36.4 28.4 29.6  
LOS by Move: D C C D C C C C C C C C C  
HCM2kAVGQ: 5 16 16 5 11 11 3 4 1 5 3 3

Note: Queue reported is the number of cars per lane.

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1070 Junipero Serra / 19th  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 1.249  
Loss Time (sec): 17 Average Delay (sec/veh): 137.8  
Optimal Cycle: 180 Level of Service: F  
\*\*\*\*\*  
Street Name: Junipero Serra 19th  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Split Phase Split Phase Permitted Permitted Permitted Permitted  
Rights: Ignore Ignore OVI Include Include  
Min. Green: 54 54 54 20 20 20 9 9 9 9 9 9  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 2 1 0 1 0 0 1 2 1 0 0 0 1 0 0 1 0

Volume Module:  
Base Vol: 2410 1660 25 0 1178 17 0 123 3060 31 47 50  
Growth Adj: 1.09 1.12 1.06 1.09 1.18 1.12 1.06 1.01 1.09 1.12 1.06 1.09  
Initial Bse: 2621 1851 27 0 1388 19 0 124 3346 35 50 54  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 2621 1851 27 0 1388 19 0 124 3346 35 50 54  
User Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.97 0.97 0.00 0.97 0.97 0.00 0.97 0.97 0.97 0.97 0.97 0.97  
PHF Volume: 2702 1909 0 0 1431 0 0 128 3449 36 51 56  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 2702 1909 0 0 1431 0 0 128 3449 36 51 56  
MLF Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 2702 1909 0 0 1431 0 0 128 3449 36 51 56

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.88 0.90 0.95 0.91 0.89 0.91 1.00 0.98 0.73 0.62 0.90 0.90  
Lanes: 2.37 1.63 0.00 0.00 4.00 0.00 0.00 1.00 3.00 1.00 0.48 0.52  
Final Sat.: 3959 2796 0 0 6778 0 0 1862 4178 1184 821 896

Capacity Analysis Module:  
Vol/Sat: 0.68 0.68 0.00 0.00 0.21 0.00 0.00 0.07 0.83 0.03 0.06 0.06  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.50 0.50 0.50 0.20 0.20 0.20 0.14 0.14 0.68 0.14 0.14 0.14  
Volume/Cap: 1.37 1.37 0.00 0.00 1.06 0.00 0.00 0.49 1.21 0.22 0.45 0.45  
Delay/Veh: 185.5 185 0.0 0.0 80.6 0.0 0.0 46.2 105.1 41.1 45.4 45.4  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 185.5 185 0.0 0.0 80.6 0.0 0.0 46.2 105.1 41.1 45.4 45.4  
LOS by Move: F F A A A A A A A A A A A  
HCM2kAVGQ: 78 78 0 0 17 0 0 4 70 1 4 4

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1080 Junipero Serra / I-280 NB On-Ramp / John Daly  
\*\*\*\*\*  
Cycle (sec): 125 Critical Vol./Cap.(X): 1.307  
Loss time (sec): 12 Average Delay (sec/veh): 132.2  
Optimal Cycle: 180 Level Of Service: F  
\*\*\*\*\*

Street Name: Junipero Serra / I-280 NB On-Ramp John Daly  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Split Phase Split Phase Split Phase Split Phase  
Rights: Ovl Include Ovl  
Min. Green: 6 6 6 6 31 31 31 6 6  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 2 0 1 1 1 0 0 1 1 2 1 0 1 1 1 2 0 1

Volume Module:  
Base Vol: 621 381 328 210 383 857 667 495 160 122 895 232  
Growth Adj: 1.19 1.13 1.11 1.28 1.47 1.36 1.11 1.09 1.28 1.36 1.25 1.19  
Initial Bse: 739 429 363 268 562 1167 738 537 204 166 1122 276  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 739 429 363 268 562 1167 738 537 204 166 1122 276  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97  
PHF Volume: 762 442 374 276 580 1203 761 554 211 171 1157 285  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 762 442 374 276 580 1203 761 554 211 171 1157 285

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.90 0.87 0.87 0.93 0.88 0.88 0.86 0.89 0.89 0.89 0.89 0.83  
Lanes: 2.00 1.63 1.37 1.00 0.65 1.35 2.34 1.66 1.00 1.00 3.00 1.00  
Final Sat: 3432 2677 2263 1769 1089 2259 3843 2799 1690 1684 5053 1583

Capacity Analysis Module:  
Vol/Sat: 0.22 0.17 0.17 0.16 0.53 0.53 0.20 0.20 0.12 0.10 0.23 0.18  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.15 0.15 0.30 0.36 0.36 0.60 0.25 0.25 0.25 0.15 0.15 0.51  
Volume/Cap: 1.50 1.12 0.55 0.44 1.50 0.88 0.80 0.80 0.50 0.67 1.50 0.35  
Delay/Veh: 288.1 123 37.0 31.3 269 26.0 46.5 46.5 40.5 50.8 284 18.7  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 288.1 123 37.0 31.3 269 26.0 46.5 46.5 40.5 50.8 284 18.7  
LOS by Move: F F D C F C D D D F B  
HCM2kAVGQ: 33 18 10 8 71 32 12 12 7 8 35 6  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1090 Junipero Serra / I-280 SB On-Ramp / John Daly  
\*\*\*\*\*  
Cycle (sec): 120 Critical Vol./Cap.(X): 1.065  
Loss time (sec): 8 Average Delay (sec/veh): 52.5  
Optimal Cycle: 180 Level Of Service: D  
\*\*\*\*\*

Street Name: Junipero Serra / I-280 SB On-Ramp John Daly  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Split Phase Split Phase Split Phase Split Phase  
Rights: Ovl Include Ovl Include  
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 0 2 0 0 0 0 0 0 2 0 2 0 2 0 0

Volume Module:  
Base Vol: 0 0 350 0 0 0 0 972 427 722 1966 0  
Growth Adj: 1.05 1.00 1.04 1.32 1.55 1.33 1.04 1.09 1.32 1.33 1.10 1.05  
Initial Bse: 0 0 365 0 0 0 0 1058 563 938 2172 0  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 0 365 0 0 0 0 1058 563 938 2172 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97  
PHF Volume: 0 0 377 0 0 0 0 1091 580 987 2239 0  
Reduced Vol: 0 0 377 0 0 0 0 1091 580 987 2239 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 0 377 0 0 0 0 1091 580 987 2239 0

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 1.00 0.73 1.00 1.00 1.00 1.00 0.85 0.85 0.90 0.93 1.00  
Lanes: 0.00 0.00 2.00 0.00 0.00 0.00 0.00 2.00 1.00 2.00 2.00 0.00  
Final Sat: 0 0 2786 0 0 0 0 3213 1606 3432 3538 0

Capacity Analysis Module:  
Vol/Sat: 0.00 0.00 0.14 0.00 0.00 0.00 0.00 0.34 0.36 0.29 0.63 0.00  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.00 0.59 0.00 0.00 0.00 0.00 0.34 0.34 0.59 0.59 0.00  
Volume/Cap: 0.00 0.00 0.23 0.00 0.00 0.00 0.00 1.00 1.07 0.48 1.07 0.00  
Delay/Veh: 0.0 0.0 11.5 0.0 0.0 0.0 0.0 61.9 82.0 14.1 64.1 0.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 0.0 11.5 0.0 0.0 0.0 0.0 61.9 82.0 14.1 64.1 0.0  
LOS by Move: A A B A A A A E F B E A  
HCM2kAVGQ: 0 0 4 0 0 0 0 29 33 10 49 0  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 1Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*

Intersection #1100 19th / Taraval

Cycle (sec): 100 Critical Vol./Cap.(X): 0.847  
Loss Time (sec): 10 Average Delay (sec/veh): 20.0  
Optimal Cycle: 99 Level Of Service: B

Street Name: 19th Taraval

Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - RControl: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 66 66 66 66 23 23 23 23  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 0 1 0 0 1 0 0 1 0 0

Volume Module:

Base Vol: 0 2131 104 0 2591 31 3 331 84 22 336 51  
Growth Adj: 1.06 1.12 1.06 1.09 1.06 1.00 1.09 1.09 1.09 1.00 1.06  
Initial Bse: 0 2377 110 0 3053 34 3 331 91 24 336 54  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2377 110 0 3053 34 3 331 91 24 336 54  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97  
PHF Volume: 0 2450 113 0 3148 35 3 341 94 25 346 56  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2450 113 0 3148 35 3 341 94 25 346 56  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2450 113 0 3148 35 3 341 94 25 346 56

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 0.89 0.86 0.86 0.86 0.83 0.83 0.83  
Lanes: 0.00 2.87 0.13 0.00 2.97 0.03 0.01 1.56 0.43 0.12 1.62 0.26  
Final Sat.: 0 4825 223 0 5018 55 24 2538 701 182 2559 410

Capacity Analysis Module:

Vol/Sat: 0.00 0.51 0.51 0.00 0.63 0.63 0.13 0.13 0.14 0.14 0.14  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.67 0.67 0.00 0.67 0.67 0.23 0.23 0.23 0.23 0.23  
Volume/Cap: 0.00 0.76 0.76 0.00 0.94 0.94 0.58 0.58 0.59 0.59 0.59  
Delay/Veh: 0.0 12.7 12.7 0.0 21.0 21.0 37.6 37.6 37.8 37.8 37.8  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 12.7 12.7 0.0 21.0 21.0 37.6 37.6 37.8 37.8 37.8  
LOS by Move: A B B A C C D D D D D  
HCM2kAvgQ: 0 20 20 0 37 37 7 7 7 7 7  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 1Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*

Intersection #1110 19th / Sloat

Cycle (sec): 100 Critical Vol./Cap.(X): 1.562  
Loss Time (sec): 9 Average Delay (sec/veh): 132.1  
Optimal Cycle: 180 Level Of Service: F

Street Name: 19th Sloat

Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - RControl: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 0 43 43 11 58 58 4 33 33 24 24 24  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 1 0 2 1 0 1 1 0 0 3 0 1

Volume Module:

Base Vol: 0 2446 66 235 2609 321 185 1440 74 0 870 497  
Growth Adj: 1.13 1.12 1.10 1.13 1.18 1.16 1.10 1.08 1.13 1.16 1.15 1.13  
Initial Bse: 0 2728 73 266 3075 373 203 1560 84 0 998 562  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2728 73 266 3075 373 203 1560 84 0 998 562  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97  
PHF Volume: 0 2812 75 274 3170 385 210 1608 86 0 1029 580  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2812 75 274 3170 385 210 1608 86 0 1029 580  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2812 75 274 3170 385 210 1608 86 0 1029 580

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 0.93 0.88 0.88 0.38 0.88 0.88 1.00 0.89 0.83  
Lanes: 0.00 2.92 0.08 1.00 2.68 0.32 1.00 2.85 0.15 0.00 3.00 1.00  
Final Sat.: 0 4932 131 1769 4460 541 715 4767 256 0 5083 1583

Capacity Analysis Module:

Vol/Sat: 0.00 0.57 0.57 0.15 0.71 0.71 0.29 0.34 0.34 0.00 0.20 0.37  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.43 0.43 0.12 0.55 0.55 0.37 0.37 0.37 0.00 0.27 0.27  
Volume/Cap: 0.00 1.33 1.33 1.35 1.30 1.30 0.74 0.92 0.92 0.00 0.74 1.35  
Delay/Veh: 0.0 175 174.6 229.3 155 155.3 41.7 39.0 39.0 0.0 36.9 207.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 175 174.6 229.3 155 155.3 41.7 39.0 39.0 0.0 36.9 207.0  
LOS by Move: A F F F F F D D D A D F  
HCM2kAvgQ: 0 62 62 19 78 78 8 23 23 0 12 38  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.



Tier 1 PM		Mon Jan 4, 2010 09:11:11										Page 15-1			
-----															
19th Ave CS															
Tier 1															
-----															
Level of Service Computation Report															
2000 HCM Operations Method (Future Volume Alternative)															
*****															
Intersection #1120 19th / Ocean															
*****															
Cycle (sec):	100	Critical Vol./Cap.(X):										1.580			
Loss Time (sec):	9	Average Delay (sec/veh):										157.9			
Optimal Cycle:	180	Level Of Service:										F			
*****															
Street Name: 19th Ocean															
Approach:	North Bound			South Bound			East Bound			West Bound					
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Permitted			Permitted			Permitted			Permitted					
Rights:	Include			Include			Include			Include					
Min. Green:	64	64	64	64	64	64	26	26	26	26	26	26	26	26	
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lanes:	0	0	2	1	0	0	2	1	0	1	0	0	1	0	
-----															
Volume Module:															
Base Vol:	0	2340	47	0	2579	164	64	293	25	25	271	127			
Growth Adj:	1.13	1.12	1.10	1.13	1.18	1.16	1.10	1.08	1.13	1.16	1.15	1.13			
Initial Bse:	0	2610	52	0	3039	191	70	317	28	29	311	144			
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0			
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0			
Initial Fut:	0	2610	52	0	3039	191	70	317	28	29	311	144			
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
PHF Volume:	0	2691	53	0	3133	197	73	327	29	30	320	148			
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0			
Reduced Vol:	0	2691	53	0	3133	197	73	327	29	30	320	148			
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
FinalVolume:	0	2691	53	0	3133	197	73	327	29	30	320	148			
-----															
Saturation Flow Module:															
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Adjustment:	1.00	0.44	0.89	1.00	0.88	0.88	0.89	0.97	0.97	0.72	0.72	0.72			
Lanes:	0.00	2.97	0.03	0.00	2.82	0.18	1.00	0.92	0.08	0.06	0.64	0.30			
Final Sat:	0	2509	50	0	4740	297	1693	1689	150	82	876	405			
-----															
Capacity Analysis Module:															
Vol/Sat:	0.00	1.07	1.07	0.00	0.66	0.66	0.04	0.19	0.19	0.37	0.37	0.37			
Crit Moves:	****														
Green/Cycle:	0.64	0.64	0.64	0.64	0.64	0.64	0.27	0.27	0.27	0.27	0.27	0.27			
Volume/Cap:	0.00	1.68	1.68	0.00	1.03	1.03	0.16	0.73	0.73	1.38	1.38	1.38			
Delay/Veh:	0.0	315	315.1	0.0	33.5	33.5	29.0	42.8	42.8	224.7	225	224.7			
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
AdjDel/Veh:	0.0	315	315.1	0.0	33.5	33.5	29.0	42.8	42.8	224.7	225	224.7			
LOS by Move:	A	F	F	A	C	C	D	D	D	F	F	F			
HCM2KavgQ:	0	78	156	0	41	41	2	11	11	34	34	34			
*****															
Note: Queue reported is the number of cars per lane.															

Tier 1 PM		Mon Jan 4, 2010 09:11:11										Page 16-1	
		19th Ave CS											
		Tier 1											
Level of Service Computation Report													
2000 HCM Operations Method (Future Volume Alternative)													
*****													
Intersection #1130 19th / Eucalyptus													
*****													
Cycle (sec):	100	Critical Vol./Cap.(X):										1.090	
Loss Time (sec):	9	Average Delay (sec/veh):										72.7	
Optimal Cycle:	180	Level Of Service:										E	
*****													
Street Name: 19th Eucalyptus													
Approach:	North Bound			South Bound			East Bound			West Bound			
Movement:	L	T	R	L	T	R	L	T	R	L	T	R	
Control:	Permitted			Permitted			Permitted			Permitted			
Rights:	Include			Include			Include			Include			
Min. Green:	66	66	66	66	66	66	25	25	25	25	25	25	
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lanes:	0	0	2	1	0	0	2	1	0	1	1	0	
*****													
Volume Module:													
Base Vol:	0	2277	26	0	2555	114	170	169	54	9	167	17	
Growth Adj:	1.13	1.12	1.10	1.13	1.18	1.16	1.10	1.08	1.13	1.16	1.15	1.13	
Initial Bse:	0	2540	29	0	3011	133	187	183	61	10	192	19	
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0	
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0	
Initial Fut:	0	2540	29	0	3011	133	187	183	61	10	192	19	
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
PHF Volume:	0	2618	29	0	3104	137	193	189	63	11	197	20	
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0	
Reduced Vol:	0	2618	29	0	3104	137	193	189	63	11	197	20	
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
FinalVolume:	0	2618	29	0	3104	137	193	189	63	11	197	20	
*****													
Saturation Flow Module:													
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Adjustment:	1.00	0.53	0.89	1.00	0.89	0.89	0.63	0.63	0.63	0.95	0.95	0.95	
Lanes:	0.00	2.98	0.02	0.00	2.87	0.13	1.30	1.27	0.43	0.05	0.86	0.09	
Final Sat:	0	3023	34	0	4840	213	1559	1527	509	85	1562	157	
*****													
Capacity Analysis Module:													
Vol/Sat:	0.00	0.87	0.87	0.00	0.64	0.64	0.12	0.12	0.12	0.13	0.13	0.13	
Crit Moves:	****												
Green/Cycle:	0.66	0.66	0.66	0.66	0.66	0.66	0.26	0.26	0.26	0.26	0.26	0.26	
Volume/Cap:	0.00	1.31	1.31	0.00	0.97	0.97	0.48	0.48	0.48	0.50	0.50	0.50	
Delay/Veh:	0.0	151	151.0	0.0	16.8	16.8	33.5	33.5	33.5	35.5	35.5	35.5	
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
AdjDel1/Veh:	0.0	151	151.0	0.0	16.8	16.8	33.5	33.5	33.5	35.5	35.5	35.5	
LOS by Move:	A	F	F	A	B	B	C	C	C	D	D	D	
HCM2kAVQ:	0	59	96	0	30	30	5	5	5	6	6	6	
*****													
Note: Queue reported is the number of cars per lane.													
*****													

19th Ave CS  
Tier 1

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

19th Ave CS  
Tier 1

Level Of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1140 19th / Winston

Intersection #1150 19th / Buckingham

Cycle (sec): 100 Critical Vol./Cap.(X): 1.336  
Loss Time (sec): 13 Average Delay (sec/veh): 100.5  
Optimal Cycle: 180 Level Of Service: F

Average Delay (sec/veh): 19.0 Worst Case Level Of Service: F[432.5]

Street Name: 19th Winston

Street Name: 19th Buckingham

Approach: North Bound South Bound East Bound West Bound

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Include Permitted Add Lane Permitted Include

Control: Uncontrolled Include Stop Sign Include

Rights: 16 44 44 44 44 44 26 26 26 26 26

Rights: 0 0 3 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Y+R: 1.04 1.12 1.07 1.10 1.18 1.07 1.07 1.02 1.10 1.07 1.00 1.04

Lanes: 2 0 2 1 0 0 0 3 0 1 1 1 0 1 0 1 0

Lanes: 0 0 3 0 0 0 0 3 0 1 0 0 0 1 0 0 0 0

Volume Module:

Volume Module:

Base Vol: 524 2162 50 0 2624 168 245 364 347 95 351 45

Base Vol: 0 2736 0 0 2996 68 0 0 278 0 0 0

Growth Adj: 1.03 1.12 1.05 1.09 1.18 1.06 1.05 1.00 1.09 1.06 1.00 1.03

Growth Adj: 1.04 1.12 1.07 1.10 1.18 1.07 1.07 1.02 1.10 1.07 1.00 1.04

Initial Bse: 539 2411 53 0 3092 178 258 364 377 101 351 46

Initial Bse: 0 3051 0 0 3531 73 0 0 305 0 0 0

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 539 2411 53 0 3092 178 258 364 377 101 351 46

Initial Fut: 0 3051 0 0 3531 73 0 0 305 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97

PHF Adj: 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97

PHF Volume: 555 2486 54 0 3188 183 266 375 388 104 362 48

PHF Volume: 0 3146 0 0 3640 75 0 0 315 0 0 0

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

FCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Volume: 555 2486 54 0 3188 183 266 375 388 104 362 48

Final Volume: 0 3146 0 0 3640 75 0 0 315 0 0 0

Saturation Flow Module:

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 0.90 0.89 0.89 1.00 1.34 0.83 0.23 0.17 0.83 0.65 0.65 0.65

Adjustment: 0.90 0.89 0.89 1.00 1.34 0.83 0.23 0.17 0.83 0.65 0.65 0.65

Lanes: 2.00 2.94 0.06 0.00 3.00 1.00 1.04 1.96 1.00 0.40 1.41 0.19

Lanes: 0 3051 0 0 3531 73 0 0 305 0 0 0

Final Sat.: 3432 4960 108 0 7625 1583 457 644 1583 499 1741 229

Final Sat.: 0 3051 0 0 3531 73 0 0 305 0 0 0

Capacity Analysis Module:

Capacity Analysis Module:

Vol/Sat: 0.16 0.50 0.50 0.00 0.42 0.12 0.58 0.58 0.25 0.21 0.21 0.21

Vol/Sat: 0.16 0.50 0.50 0.00 0.42 0.12 0.58 0.58 0.25 0.21 0.21 0.21

Crit Moves: 0.44 0.44 0.44 0.44 0.44 0.44 0.27 0.27 0.27 0.27 0.27 0.27

Crit Moves: 0.44 0.44 0.44 0.44 0.44 0.44 0.27 0.27 0.27 0.27 0.27 0.27

Green/Cycle: 0.16 0.44 0.44 0.00 0.95 0.26 2.20 2.20 0.93 0.78 0.78 0.78

Green/Cycle: 0.16 0.44 0.44 0.00 0.95 0.26 2.20 2.20 0.93 0.78 0.78 0.78

Volume/Cap: 1.01 1.14 1.14 0.00 0.95 0.26 2.20 2.20 0.93 0.78 0.78 0.78

Volume/Cap: 1.01 1.14 1.14 0.00 0.95 0.26 2.20 2.20 0.93 0.78 0.78 0.78

Delay/Veh: 83.2 92.4 92.4 0.0 30.5 16.0 586.8 587 64.5 43.2 43.2 43.2

Delay/Veh: 83.2 92.4 92.4 0.0 30.5 16.0 586.8 587 64.5 43.2 43.2 43.2

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 83.2 92.4 92.4 0.0 30.5 16.0 586.8 587 64.5 43.2 43.2 43.2

AdjDel/Veh: 83.2 92.4 92.4 0.0 30.5 16.0 586.8 587 64.5 43.2 43.2 43.2

LOS by Move: F F F A C B F E D D D

LOS by Move: F F F A C B F E D D D

HCMAKAGQ: 9 41 41 0 39 3 27 21 16 9 9 9

HCMAKAGQ: 9 41 41 0 39 3 27 21 16 9 9 9

Note: Queue reported is the number of cars per lane.

Note: Queue reported is the number of cars per lane.

Tier 1 PM	Mon Jan 4, 2010 09:11:11	Page 20-1
19th Ave CS		
Tier 1		
Level Of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1170 19th / Crespi		
Cycle (sec):	100	Critical Vol./Cap.(X): 0.852
Loss Time (sec):	10	Average Delay (sec/veh): 53.7
Optimal Cycle:	95	Level Of Service: D
Street Name: 19th Crespi		
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Permitted	Permitted
Rights:	Include	Ignore
Min. Green:	59 59 0	0 64 64
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 3 0 0	0 0 2 1 0
Volume Module:		
Base Vol:	0 2485	0 3081
Growth Adj:	1.15 1.12	1.00 1.00
Initial Bse:	0 2772	0 3631
Added Vol:	0 0 0	0 0 0
PasserByVol:	0 0 0	0 0 0
Initial Fut:	0 2772	0 3631
User Adj:	1.00 1.00	1.00 1.00
PHF Adj:	0.97 0.97	0.97 0.97
PHF Volume:	0 2857	0 3743
Reduced Vol:	0 0 0	0 0 0
Reduced Vol:	0 2857	0 3743
PCE Adj:	1.00 1.00	1.00 1.00
MLF Adj:	1.00 1.00	1.00 1.00
FinalVolume:	0 2857	0 3743
Saturation Flow Module:		
Sat/Lane:	1900 1900	1900 1900
Adjustment:	1.00 0.89	1.00 0.89
Lanes:	0.00 3.00	0.00 3.00
Final Sat:	0 5083	0 5083
Capacity Analysis Module:		
Vol/Sat:	0.00 0.56	0.00 0.74
Crit Moves:	0.59 0.59	0.64 0.64
Green/Cycle:	0.00 0.95	0.00 1.15
Volume/Cap:	0.0 20.1	0.0 80.2
Delay/Veh:	1.00 1.00	1.00 1.00
User DelAdj:	0.0 20.1	0.0 80.2
AdjDel/Veh:	0.0 20.1	0.0 80.2
LOS by Move:	A C A	A F A
HCM2kAvgQ:	0 33	0 61

Tier 1 PM	Mon Jan 4, 2010 09:11:11	Page 19-1
19th Ave CS		
Tier 1		
Level Of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1160 19th / Holloway		
Cycle (sec):	100	Critical Vol./Cap.(X): 0.876
Loss Time (sec):	0	Average Delay (sec/veh): 111.4
Optimal Cycle:	116	Level Of Service: F
Street Name: 19th Holloway		
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Permitted	Permitted
Rights:	Include	Include
Min. Green:	0 59 59	32 32 32
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 2 1 0	0 0 3 0 1
Volume Module:		
Base Vol:	0 2489	143 88 167
Growth Adj:	1.23 1.12	1.15 1.19
Initial Bse:	0 2776	165 184 101
Added Vol:	0 0 0	0 0 0
PasserByVol:	0 0 0	0 0 0
Initial Fut:	0 2776	165 184 101
User Adj:	1.00 1.00	1.00 1.00
PHF Adj:	0.97 0.97	0.97 0.97
PHF Volume:	0 2862	170 189 105
Reduced Vol:	0 0 0	0 0 0
Reduced Vol:	0 2862	170 189 105
PCE Adj:	1.00 1.00	1.00 1.00
MLF Adj:	1.00 1.00	1.00 1.00
FinalVolume:	0 2862	170 189 105
Saturation Flow Module:		
Sat/Lane:	1900 1900	1900 1900
Adjustment:	1.00 0.93	0.88 0.83
Lanes:	0.00 2.82	0.18 0.00
Final Sat:	0 4984	296 5337
Capacity Analysis Module:		
Vol/Sat:	0.00 0.57	0.57 0.12
Crit Moves:	0.52 0.52	0.52 0.32
Green/Cycle:	0.00 1.10	0.00 1.33
Volume/Cap:	0.0 70.7	0.0 170
Delay/Veh:	1.00 1.00	1.00 1.00
User DelAdj:	0.0 70.7	0.0 170
AdjDel/Veh:	0.0 70.7	0.0 170
LOS by Move:	A E A	F B C
HCM2kAvgQ:	0 46	44 81



Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1181 Chumaseo / Brotherhood  
Cycle (sec): 100 Critical Vol./Cap.(X): 1.116  
Loss Time (sec): 12 Average Delay (sec/veh): 233.4  
Optimal Cycle: 180 Level Of Service: F

Street Name: Chumaseo Brotherhood West Bound  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Protected Protected  
Rights: Include Include Include Include  
Min. Green: 20 20 20 20 20 20 20 20 48 48  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 1 0 0 0 1 0 1 0 1 0

Volume Module:  
Base Vol: 12 5 32 75 4 12 39 1460 11 33 1613 236  
Growth Adj: 1.28 1.00 1.08 1.27 1.38 1.47 1.08 1.16 1.27 1.47 1.57 1.28  
Initial Bse: 15 5 34 95 6 18 42 1698 14 49 2532 302  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 15 5 34 95 6 18 42 1698 14 49 2532 302  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97  
PHF Volume: 16 5 35 98 6 18 43 1750 14 50 2610 311  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 16 5 35 98 6 18 43 1750 14 50 2610 311  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 16 5 35 98 6 18 43 1750 14 50 2610 311

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.66 0.66 0.83 0.54 0.54 0.54 0.93 0.93 0.93 0.92 0.92  
Lanes: 0.32 0.10 0.58 0.80 0.05 0.15 1.00 1.98 0.02 1.00 1.79 0.21  
Final Sat: 404 132 906 831 48 154 1769 3505 29 1769 3110 371

Capacity Analysis Module:  
Vol/Sat: 0.04 0.04 0.04 0.12 0.12 0.12 0.02 0.50 0.50 0.03 0.84 0.84  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.48 0.48 0.20 0.48 0.48  
Volume/Cap: 0.20 0.20 0.20 0.59 0.59 0.59 0.32 1.04 1.04 0.14 1.75 1.75  
Delay/Veh: 34.8 34.8 34.8 48.2 48.2 48.2 33.5 53.8 53.8 33.8 360 359.8  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 34.8 34.8 34.8 48.2 48.2 48.2 33.5 53.8 53.8 33.8 360 359.8  
LOS by Move: C C C D D D C D C D C F F  
HCM2kAvgQ: 1 1 2 4 4 4 1 39 39 1 127 127

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1190 Sunset / Taraval  
Cycle (sec): 60 Critical Vol./Cap.(X): 0.852  
Loss Time (sec): 10 Average Delay (sec/veh): 53.1  
Optimal Cycle: 69 Level Of Service: D

Street Name: Sunset Taraval West Bound  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 29 29 29 29 29 29 21 21 21 21  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 0 2 1 0 1 0 1 0 1 0

Volume Module:  
Base Vol: 0 2129 96 0 1790 117 70 238 37 76 243 30  
Growth Adj: 1.14 1.20 1.12 1.15 1.26 1.17 1.12 1.04 1.15 1.17 1.08 1.14  
Initial Bse: 0 2553 108 0 2261 137 79 249 43 89 263 34  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2553 108 0 2261 137 79 249 43 89 263 34  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97  
PHF Volume: 0 2632 111 0 2331 141 81 256 44 92 271 35  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2632 111 0 2331 141 81 256 44 92 271 35  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2632 111 0 2331 141 81 256 44 92 271 35

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 1.00 0.88 0.88 0.48 0.96 0.96 0.49 0.96 0.96  
Lanes: 0.00 2.88 0.12 0.00 2.83 0.17 1.00 0.85 0.15 1.00 0.88 0.12  
Final Sat: 0 4848 204 0 4750 288 909 1554 267 922 1619 211

Capacity Analysis Module:  
Vol/Sat: 0.00 0.54 0.54 0.00 0.49 0.49 0.09 0.16 0.16 0.10 0.17 0.17  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.48 0.48 0.00 0.48 0.48 0.35 0.35 0.35 0.35 0.35 0.35  
Volume/Cap: 0.00 1.12 1.12 0.00 1.02 1.02 0.25 0.47 0.47 0.28 0.48 0.48  
Delay/Veh: 0.0 77.0 77.0 0.0 37.7 37.7 15.8 17.7 17.7 16.3 17.8 17.8  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 77.0 77.0 0.0 37.7 37.7 15.8 17.7 17.7 16.3 17.8 17.8  
LOS by Move: A E A D D B B B B B B B  
HCM2kAvgQ: 0 37 37 0 27 27 1 5 5 1 5 5

Note: Queue reported is the number of cars per lane.

Tier 1 PM	Mon Jan 4, 2010 09:11:11	Page 24-1
19th Ave CS		
Tier 1		
Level of Service Computation Report		
2000 HCM 4-Way Stop Method (Future Volume Alternative)		
*****		
Intersection #1210 Skyline / Sloat / 39th		
*****		
Cycle (sec):	100	Critical Vol./Cap.(X): 0.920
Loss Time (sec):	0	Average Delay (sec/veh): 27.9
Optimal Cycle:	0	Level Of Service: D
*****		
Street Name:	Skyline / 39th	Sloat
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign
Rights:	Ignore	Ignore
Min. Green:	0 0 0 0	0 0 0 0
Lanes:	0 1 0 0 2	0 0 0 1 0
*****		
Volume Module:		
Base Vol:	327	0 565
Growth Adj:	1.13	1.23
Initial Bse:	371	0 701
Added Vol:	0	0 0
PasserByVol:	0	0 0
Initial Fut:	371	0 701
User Adj:	1.00	1.00
PHF Adj:	0.97	0.97
PHF Volume:	382	0 0
Reduced Vol:	0	0 0
Reduced Vol:	382	0 0
PCE Adj:	1.00	1.00
MLF Adj:	1.00	1.00
FinalVolume:	382	0 0
*****		
Saturation Flow Module:		
Adjustment:	1.00	1.00
Lanes:	1.00	0.00
Final Sat:	415	0 929
*****		
Capacity Analysis Module:		
Vol/Sat:	0.92	xxxx
Crit Moves:	54.5	0.0
Delay/Veh:	54.5	0.0
AdjDel/Veh:	54.5	0.0
LOS by Move:	F	*
ApproachDel:	54.5	12.7
Delay Adj:	1.00	1.00
ApprAdjDel:	54.5	12.7
LOS by Appr:	F	B
AllWayAvgQ:	5.0	5.0
*****		
Note: Queue reported is the number of cars per lane.		

Tier 1 PM	Mon Jan 4, 2010 09:11:11	Page 23-1
19th Ave CS		
Tier 1		
Level of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
*****		
Intersection #1200 Sunset / Ocean		
*****		
Cycle (sec):	60	Critical Vol./Cap.(X): 0.694
Loss Time (sec):	9	Average Delay (sec/veh): 13.5
Optimal Cycle:	59	Level Of Service: B
*****		
Street Name:	Sunset	Ocean
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Permitted	Permitted
Rights:	Include	Include
Min. Green:	31 31 31	31 31 31
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 2 1 0	0 1 1 1 0
*****		
Volume Module:		
Base Vol:	0 1682	14 1 1588
Growth Adj:	1.11	1.24
Initial Bse:	0 2085	15 1 1589
Added Vol:	0	0 0
PasserByVol:	0	0 0
Initial Fut:	0 2085	15 1 1589
User Adj:	1.00	1.00
PHF Adj:	0.97	0.97
PHF Volume:	0 2149	16 1 1638
Reduced Vol:	0	0 0
Reduced Vol:	0 2149	16 1 1638
PCE Adj:	1.00	1.00
MLF Adj:	1.00	1.00
FinalVolume:	0 2149	16 1 1638
*****		
Saturation Flow Module:		
Sat/Lane:	1900	1900
Adjustment:	1.00	0.89
Lanes:	0.00	2.98
Final Sat:	0 5041	37 3 4579
*****		
Capacity Analysis Module:		
Vol/Sat:	0.00	0.43
Crit Moves:	0.00	0.53
Green/Cycle:	0.00	0.53
Volume/Cap:	0.00	0.80
Delay/Veh:	0.00	14.0
User DelAdj:	1.00	1.00
AdjDel/Veh:	0.0	14.0
LOS by Move:	A	B
HCM2KAVQ:	0	11
*****		
Note: Queue reported is the number of cars per lane.		

Level of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1221 Skyline / Lake Merced (WBR)  
Average Delay (sec/veh): 2.5 Worst Case Level of Service: C (17.7)

Street Name: Skyline  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign  
Rights: Include Include Include Include  
Lanes: 0 0 2 0 0 1 0 2 0 0 0 0 0 0 0 0 0 0 1

Volume Module:  
Base Vol: 0 853 0 100 489 0 0 0 0 0 0 0 0 133  
Growth Adj: 1.51 1.22 1.12 1.07 1.12 1.46 1.12 1.02 1.07 1.46 1.81 1.51  
Initial Bse: 0 1041 0 107 548 0 0 0 0 0 0 0 201  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 1041 0 107 548 0 0 0 0 0 0 201  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97  
PHF Volume: 0 1073 0 110 565 0 0 0 0 0 0 207  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0  
FinalVolume: 0 1073 0 110 565 0 0 0 0 0 0 207

Critical Gap Module:  
Critical Gap: 4.1 xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 6.9  
FollowUpTime: 2.2 xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 3.3

Capacity Module:  
Conflict Vol: 1073 xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 536  
Potent Cap: 646 xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 489  
Move Cap: 646 xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 489  
Volume/Cap: 0.17 xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 0.42

Level of Service Module:  
2Way95thQ: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 2.1  
Control Del: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 17.7  
LOS by Move: B \* \* \* \* \* C  
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Shared Cap: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
SharedQueue: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
Shrd ConDel: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
Shared LOS: \* \* \* \* \* \*  
ApproachDel: xxxxxx xxxxxx 17.7  
ApproachLOS: C

Note: Queue reported is the number of cars per lane.

Level of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1222 Skyline / Lake Merced (WBLT)  
Average Delay (sec/veh): 7.8 Worst Case Level of Service: F (125.5)

Street Name: Skyline  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign  
Rights: Include Include Include Include  
Lanes: 1 0 1 1 0 0 0 2 0 1 0 0 0 0 1 0 1 0 0

Volume Module:  
Base Vol: 8 853 118 0 468 21 0 0 0 0 75 3 0  
Growth Adj: 1.51 1.22 1.12 1.07 1.12 1.46 1.12 1.02 1.07 1.46 1.81 1.51  
Initial Bse: 12 1044 133 0 524 31 0 0 0 0 110 5 0  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 12 1044 133 0 524 31 0 0 0 0 110 5 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97  
PHF Volume: 12 1076 137 0 540 32 0 0 0 0 113 6 0  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
FinalVolume: 12 1076 137 0 540 32 0 0 0 0 113 6 0

Critical Gap Module:  
Critical Gap: 4.1 xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 6.8 6.5 xxxxxx  
FollowUpTime: 2.2 xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 3.5 4.0 xxxxxx

Capacity Module:  
Conflict Vol: 572 xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 1440 1742 xxxxxx  
Potent Cap: 997 xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 124 86 xxxxxx  
Move Cap: 997 xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 122 85 xxxxxx  
Volume/Cap: 0.01 xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 0.92 0.07 xxxxxx

Level of Service Module:  
2Way95thQ: 0.0 xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 6.0 0.2 xxxxxx  
Control Del: 8.7 xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 129.2 50.4 xxxxxx  
LOS by Move: A \* \* \* \* \* F  
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Shared Cap: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
SharedQueue: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
Shrd ConDel: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
Shared LOS: \* \* \* \* \* \*  
ApproachDel: xxxxxx xxxxxx 125.5  
ApproachLOS: F

Note: Queue reported is the number of cars per lane.





19th Ave CS

Tier 1

## Level of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1250 Lake Merced / Font

Cycle (sec): 90 Critical Vol./Cap.(X): 0.791  
Loss Time (sec): 7 Average Delay (sec/veh): 49.7  
Optimal Cycle: 90 Level of Service: D

Street Name: Lake Merced Font

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Protected Split Phase Split Phase

Rights: Ignore Include Include

Min. Green: 43 43 15 61 0 0 0 22 0 22 0 22

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 0 1 0 0 0 1

## Volume Module:

Base Vol: 0 1683 17 176 1644 0 0 0 0 104 0 331  
Growth Adj: 1.08 1.12 1.10 1.13 1.18 1.11 1.10 1.08 1.13 1.11 1.04 1.08  
Initial Bse: 0 1877 19 198 1937 0 0 0 0 115 0 357  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 1877 19 198 1937 0 0 0 0 115 0 357  
User Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.97 0.97 0.00 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97  
PHF Volume: 0 1935 0 204 1997 0 0 0 0 119 0 368  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 1935 0 204 1997 0 0 0 0 119 0 368  
PCE Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 1935 0 204 1997 0 0 0 0 119 0 368

## Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 1.00 0.93 0.93 1.00 1.00 1.00 0.93 1.00 0.83  
Lanes: 0.00 2.00 1.00 2.00 2.00 0.00 0.00 0.00 0.00 0.00 1.00  
Final Sat: 0 3538 1900 1769 3538 0 0 0 0 1769 0 1583

## Capacity Analysis Module:

Vol/Sat: 0.00 0.55 0.00 0.12 0.56 0.00 0.00 0.00 0.00 0.07 0.00 0.23  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.48 0.48 0.48 0.17 0.68 0.68 0.00 0.00 0.00 0.24 0.24  
Volume/Cap: 0.00 1.14 0.00 0.69 0.83 0.00 0.00 0.00 0.00 0.28 0.00  
Delay/Veh: 0.0 91.5 0.0 48.0 7.3 0.0 0.0 0.0 0.0 29.1 0.0 68.4  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 91.5 0.0 48.0 7.3 0.0 0.0 0.0 0.0 29.1 0.0 68.4  
LOS by Move: A F A D A A A A A A A E  
HCM2kAvQ: 0 48 0 7 15 0 0 0 0 3 0 15

Note: Queue reported is the number of cars per lane.

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

19th Ave CS

Tier 1

## Level of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1263 Lake Merced / Higuera

Cycle (sec): 90 Critical Vol./Cap.(X): 0.852  
Loss Time (sec): 11 Average Delay (sec/veh): 82.1  
Optimal Cycle: 90 Level of Service: F

Street Name: Lake Merced Higuera

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Protected Split Phase Split Phase

Rights: Include Include Include

Min. Green: 41 41 41 11 59 59 0 0 0 20 0 20

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 1 0 1 0 2 0 0 0 0 0 1 0 0 0 1

## Volume Module:

Base Vol: 0 1675 127 59 1717 0 0 0 0 102 0 57  
Growth Adj: 1.88 1.12 1.16 1.19 1.18 1.91 1.16 1.20 1.19 1.91 2.64 1.88  
Initial Bse: 0 1868 147 70 2023 0 0 0 0 195 0 107  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 1868 147 70 2023 0 0 0 0 195 0 107  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97  
PHF Volume: 0 1926 152 72 2086 0 0 0 0 201 0 110  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 1926 152 72 2086 0 0 0 0 201 0 110  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 1926 152 72 2086 0 0 0 0 201 0 110

## Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.92 0.92 0.93 0.93 1.00 1.00 1.00 1.00 0.93 1.00 0.83  
Lanes: 0.00 1.85 0.15 1.00 2.00 0.00 0.00 0.00 0.00 1.00 0.00 1.00  
Final Sat: 0 3243 255 1769 3538 0 0 0 0 1769 0 1583

## Capacity Analysis Module:

Vol/Sat: 0.00 0.59 0.59 0.04 0.59 0.00 0.00 0.00 0.00 0.11 0.00 0.07  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.46 0.46 0.46 0.12 0.66 0.66 0.00 0.00 0.00 0.22 0.22  
Volume/Cap: 0.00 1.30 1.30 0.33 0.90 0.00 0.00 0.00 0.00 0.51 0.00 0.31  
Delay/Veh: 0.0 161 161.5 40.3 11.6 0.0 0.0 0.0 0.0 35.4 0.0 31.6  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 161 161.5 40.3 11.6 0.0 0.0 0.0 0.0 35.4 0.0 31.6  
LOS by Move: A F F D B A A A A A C  
HCM2kAvQ: 0 63 63 2 24 0 0 0 0 5 0 3

Note: Queue reported is the number of cars per lane.

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

Tier 1 PM

Mon Jan 4, 2010 09:11:12

Page 31-1

19th Ave CS

Tier 1

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1270 Lake Merced / Brotherhood

Cycle (sec): 107

Critical Vol./Cap.(X): 2.455

Loss Time (sec): 15

Average Delay (sec/veh): 143.8

Optimal Cycle: 180

Level Of Service: F

Street Name: Lake Merced

Approach: North Bound

South Bound

East Bound

West Bound

Movement: L - T - R

L - T - R

L - T - R

L - T - R

Control: Permitted

Protected

Split Phase

Rights: WideBypass

Include

Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0

Lanes: 0 0 2 0 1 2 0 1 0 0 0 0 0 0 1 0 0 0 1

Volume Module:

Base Vol: 0 504 195 1342 517 0 0 0 0 0 267 0 1323

Growth Adj: 1.71 1.12 1.14 1.17 1.18 1.74 1.14 1.16 1.17 1.74 2.31 1.71

Initial Bse: 0 562 222 1572 609 0 0 0 0 465 0 2264

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 562 222 1572 609 0 0 0 0 465 0 2264

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97

PHF Volume: 0 579 229 1620 0 0 0 0 0 480 0 2334

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 579 229 1620 0 0 0 0 0 480 0 2334

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 0 579 229 1620 0 0 0 0 0 480 0 2334

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 1.00 0.93 0.83 0.90 1.00 1.00 1.00 1.00 1.00 0.93 1.00 0.83

Lanes: 0.00 2.00 1.00 2.00 1.00 0.00 0.00 0.00 0.00 1.00 0.00 1.00

Final Sat: 0 3538 1583 3432 1900 0 0 0 0 1769 0 1583

Capacity Analysis Module:

Vol/Sat: 0.00 0.16 0.14 0.47 0.00 0.00 0.00 0.00 0.00 0.27 0.00 1.47

Crit Moves: \*\*\*\*

Green/Cycle: 0.21 0.21 0.21 0.43 0.68 0.00 0.00 0.00 0.00 0.22 0.22 1.00

Volume/Cap: 0.00 0.80 0.70 1.10 0.00 0.00 0.00 0.00 0.00 1.21 0.00 1.47

Delay/Veh: 0.0 49.2 51.5 81.3 0.0 0.0 0.0 0.0 0.0 156.9 0.0 217.0

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 49.2 51.5 81.3 0.0 0.0 0.0 0.0 0.0 156.9 0.0 217.0

LOS by Move: A D D F A A A A A F A F A F

HCM2RAVGQ: 0 11 8 41 0 0 0 0 0 29 0 97

Note: Queue reported is the number of cars per lane.

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES



Tier 1 Conditions  
Weekend Midday Peak Hour

Tier 1 WE	Mon Jan 4, 2010 09:12:08	Page 9-1
19th Ave CS		
Tier 1		
Level Of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1070 Junipero Serra / 19th		
Cycle (sec):	100	Critical Vol./Cap.(X): 1.784
Loss Time (sec):	17	Average Delay (sec/veh): 249.2
Optimal Cycle:	180	Level Of Service: F
Street Name: Junipero Serra		
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Split Phase	Split Phase
Rights:	Ignore	Ignore
Min. Green:	54 54 54	20 20 20
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	2 1 0 1 0	0 1 2 1 0
Volume Module:		
Base Vol:	2245 1828	70 0 1917 12
Growth Adj:	1.09 1.12	1.06 1.09 1.18 1.12
Initial Bse:	2442 2039	74 0 2259 13
Added Vol:	0 0	0 0 0 0
PasserByVol:	0 0	0 0 0 0
Initial Fut:	2442 2039	74 0 2259 13
User Adj:	1.00 1.00	0.00 1.00 1.00 1.00
PHF Adj:	0.97 0.97	0.00 0.97 0.97 0.00
PHF Volume:	2517 2102	0 0 2329 0
Reduced Vol:	0 0	0 0 0 0
Reduced Vol:	2517 2102	0 0 2329 0
PCE Adj:	1.00 1.00	0.00 1.00 1.00 1.00
MLF Adj:	1.00 1.00	0.00 1.00 1.00 1.00
FinalVolume:	2517 2102	0 0 2329 0
Saturation Flow Module:		
Sat/Lane:	1900 1900	1900 1900 1900 1900
Adjustment:	0.88 0.91	0.95 0.91 0.89 0.91
Lanes:	2.21 1.79	0.00 4.00 0.00 3.00
Final Sat:	3690 3081	0 0 6778 0
Capacity Analysis Module:		
Vol/Sat:	0.68 0.68	0.00 0.00 0.34 0.00
Crit Moves:	0.68 0.68	0.00 0.00 0.05 1.14
Green/Cycle:	0.54 0.54	0.20 0.20 0.20 0.09
Volume/Cap:	1.26 1.26	0.00 1.72 0.00 0.53
Delay/Veh:	136.9 137	0.0 0.0 366 0.0
User DelAdj:	1.00 1.00	1.00 1.00 1.00 1.00
AdjDel/Veh:	136.9 137	0.0 0.0 366 0.0
LOS by Move:	F F F F	A A D F
HCM2RAvgQ:	70 70	0 0 52 0
Note: Queue reported is the number of cars per lane.		

Tier 1 WE	Mon Jan 4, 2010 09:12:08	Page 5-1
19th Ave CS		
Tier 1		
Level Of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1030 Junipero Serra / Sloat / West Portal / St. Francis		
Cycle (sec):	105	Critical Vol./Cap.(X): 1.112
Loss Time (sec):	16	Average Delay (sec/veh): 155.8
Optimal Cycle:	180	Level Of Service: F
Street Name: Junipero Serra / West Portal		
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Protected	Permitted
Rights:	Include	Include
Min. Green:	16 50 50	29 29 29
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	3 0 1 1 0	0 0 2 1 0
Volume Module:		
Base Vol:	1575 1246	23 0 787 272
Growth Adj:	1.13 1.12	1.10 1.13 1.18 1.16
Initial Bse:	1781 1390	25 0 927 316
Added Vol:	0 0	0 0 0 0
PasserByVol:	0 0	0 0 0 0
Initial Fut:	1781 1390	25 0 927 316
User Adj:	1.00 1.00	1.00 1.00 1.00 1.00
PHF Adj:	0.97 0.97	0.97 0.97 0.97 0.00
PHF Volume:	1837 1433	26 0 956 326
Reduced Vol:	0 0	0 0 0 0
Reduced Vol:	1837 1433	26 0 956 326
PCE Adj:	1.00 1.00	1.00 1.00 1.00 1.00
MLF Adj:	1.00 1.00	1.00 1.00 1.00 1.00
FinalVolume:	1837 1433	26 0 956 326
Saturation Flow Module:		
Sat/Lane:	1900 1900	1900 1900 1900 1900
Adjustment:	0.89 0.92	0.92 1.00 0.87 0.87
Lanes:	3.00 1.96	0.04 0.00 2.24 0.76
Final Sat:	5096 3430	62 0 3683 1256
Capacity Analysis Module:		
Vol/Sat:	0.36 0.42	0.42 0.00 0.26 0.20
Crit Moves:	0.36 0.42	0.00 0.11 0.11 0.11
Green/Cycle:	0.21 0.49	0.49 0.00 0.28 0.28
Volume/Cap:	1.72 0.86	0.86 0.00 0.94 0.94
Delay/Veh:	369.6 24.8	24.8 0.0 50.8 50.8
User DelAdj:	1.00 1.00	1.00 1.00 1.00 1.00
AdjDel/Veh:	369.6 24.8	24.8 0.0 50.8 50.8
LOS by Move:	F C C C	A D D F
HCM2RAvgQ:	52 21	21 0 19 20
Note: Queue reported is the number of cars per lane.		

Tier 1 WE	Mon Jan 4, 2010 09:12:09	19th Ave CS	Tier 1	Page 14-1
Level of Service Computation Report				
2000 HCM Operations Method (Future Volume Alternative)				
Intersection #110 19th / Sloat				
Cycle (sec):	100	Critical Vol./Cap.(X):	1.511	
Loss Time (sec):	9	Average Delay (sec/veh):	91.3	
Optimal Cycle:	180	Level of Service:	F	
Street Name: 19th Sloat				
Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Permitted	Protected	Permit+Prot	Permitted
Rights:	Include	Include	Include	Include
Min. Green:	0 43 43	11 58 58	4 33 33	24 24 24
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 2 1 0	1 0 2 1 0	1 1 1 0 0	0 0 3 0 1
Volume Module:				
Base Vol:	0 2032	83 275 2702	314 266 1157	123 0 1123 426
Growth Adj:	1.13 1.12	1.10 1.18	1.13 1.16	1.15 1.13
Initial Bse:	0 2266	91 311 3184	365 292 1253	139 0 1288 482
Added Vol:	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
PasserByVol:	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
Initial Fut:	0 2266	91 311 3184	365 292 1253	139 0 1288 482
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00
PHF Adj:	0.97 0.97	0.97 0.97	0.97 0.97	0.97 0.97
PHF Volume:	0 2336	94 321 3283	376 301 1292	143 0 1328 497
Reduc Vol:	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
Reduced Vol:	0 2336	94 321 3283	376 301 1292	143 0 1328 497
PCE Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00
MLF Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00
Final Volume:	0 2336	94 321 3283	376 301 1292	143 0 1328 497
Saturation Flow Module:				
Sat/Lane:	1900 1900	1900 1900	1900 1900	1900 1900
Adjustment:	1.00 0.89	0.93 0.88	0.88 0.61	0.87 1.00 0.89 0.83
Lanes:	0.00 2.88	0.12 1.00	2.69 0.31	1.00 2.70 0.30 0.00
Final Sat:	0 4857	196 1769 4492	515 1167 4480	497 0 5083 1583
Capacity Analysis Module:				
Vol/Sat:	0.00 0.48	0.48 0.18	0.73 0.73	0.26 0.29 0.29 0.00
Crit Moves:	0.00 0.43	0.43 0.18	0.61 0.61	0.30 0.30 0.30 0.00
Green/Cycle:	0.00 1.12	1.12 1.00	1.20 1.20	1.08 0.97 0.97 0.00
Volume/Cap:	0.00 84.8	84.8 90.9	102 102.0	47.0 49.1 49.1 0.0
Delay/Veh:	0.0 84.8	84.8 90.9	102 102.0	47.0 49.1 49.1 0.0
User DelAdj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00
AdjDel/Veh:	0.0 84.8	84.8 90.9	102 102.0	47.0 49.1 49.1 0.0
LOS by Move:	A F F F	F F F F	D D D D	A F F F
HCM2kAvG:	0 37	37 15 70	70 17 21	21 0 24 32
Note: Queue reported is the number of cars per lane.				

Tier 1 WE	Mon Jan 4, 2010 09:12:09	19th Ave CS	Tier 1	Page 17-1
Level of Service Computation Report				
2000 HCM Operations Method (Future Volume Alternative)				
Intersection #1140 19th / Winston				
Cycle (sec):	100	Critical Vol./Cap.(X):	0.947	
Loss Time (sec):	13	Average Delay (sec/veh):	40.4	
Optimal Cycle:	137	Level of Service:	D	
Street Name: 19th Winston				
Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Protected	Permitted	Permitted	Permitted
Rights:	Include	Include	Include	Include
Min. Green:	16 45 45	45 45 45	24 24 24	24 24 24
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	2 0 2 1 0	0 0 3 0 1	1 1 1 0 1	0 1 0 1 0
Volume Module:				
Base Vol:	424 1667	58 0 2144	200 155 253	325 17 319 25
Growth Adj:	1.03 1.12	1.05 1.09	1.18 1.06	1.05 1.00 1.09 1.06
Initial Bse:	436 1859	61 0 2527	212 163 253	353 18 319 26
Added Vol:	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
PasserByVol:	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
Initial Fut:	436 1859	61 0 2527	212 163 253	353 18 319 26
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00
PHF Adj:	0.97 0.97	0.97 0.97	0.97 0.97	0.97 0.97 0.97 0.97
PHF Volume:	449 1917	63 0 2605	218 168 261	364 19 329 26
Reduc Vol:	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
Reduced Vol:	449 1917	63 0 2605	218 168 261	364 19 329 26
PCE Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00
MLF Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00
Final Volume:	449 1917	63 0 2605	218 168 261	364 19 329 26
Saturation Flow Module:				
Sat/Lane:	1900 1900	1900 1900	1900 1900	1900 1900
Adjustment:	0.90 0.89	0.89 1.00	1.34 0.83	0.26 0.19 0.83 0.86
Lanes:	2.00 2.90	0.10 0.00	3.00 1.00	0.98 2.02 1.00 0.14
Final Sat:	3432 4897	161 0 7625	1583 480 743	1583 162 2862 231
Capacity Analysis Module:				
Vol/Sat:	0.13 0.39	0.39 0.00	0.34 0.14	0.35 0.35 0.23 0.11
Crit Moves:	0.16 0.44	0.44 0.44	0.44 0.44	0.27 0.27 0.27 0.27
Green/Cycle:	0.82 0.89	0.89 0.00	0.78 0.31	1.33 1.33 0.87 0.43
Volume/Cap:	53.4 27.7	27.7 0.0	22.0 16.6	202.9 203 55.8 32.1
Delay/Veh:	53.4 27.7	27.7 0.0	22.0 16.6	202.9 203 55.8 32.1
User DelAdj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00
AdjDel/Veh:	53.4 27.7	27.7 0.0	22.0 16.6	202.9 203 55.8 32.1
LOS by Move:	D C C C	C A C B	F F F E	C C C C
HCM2kAvG:	7 20	20 0 23	4 13 10	14 5 5 5
Note: Queue reported is the number of cars per lane.				



19th Ave CS

Tier 1

Level Of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1150 19th / Buckingham

Average Delay (sec/veh): 1.5 Worst Case Level Of Service: E[ 49.2]

Street Name: 19th Buckingham

Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - RControl: Uncontrolled Uncontrolled Stop Sign Stop Sign  
Rights: Include Include Include Include

Lanes: 0 0 3 0 0 0 0 3 0 1 0 0 0 0 1 0 0 0 0

Volume Module:

Base Vol: 0 2149 0 0 2446 40 0 0 154 0 0 0

Growth Adj: 1.04 1.12 1.07 1.10 1.18 1.07 1.07 1.02 1.10 1.07 1.00 1.04

Initial Bse: 0 2397 0 0 2883 43 0 0 169 0 0 0

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 2397 0 0 2883 43 0 0 169 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97

PHF Volume: 0 2471 0 0 2972 44 0 0 174 0 0 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

FinalVolume: 0 2471 0 0 2972 44 0 0 174 0 0 0

Critical Gap Module:

Critical Gap:xxxxx xxxx xxxx xxxx xxxx 6.9 xxxxx xxxx xxxxx

FollowUpPim:xxxxx xxxx xxxx xxxx xxxx 3.3 xxxxx xxxx xxxxx

Capacity Module:

Conflict Vol: xxxx xxxx xxxx xxxx xxxx 991 xxxxx xxxx xxxxx

Potent Cap.: xxxx xxxx xxxx xxxx xxxx 245 xxxxx xxxx xxxxx

Move Cap.: xxxx xxxx xxxx xxxx xxxx 245 xxxxx xxxx xxxxx

Volume/Cap: xxxx xxxx xxxx xxxx xxxx 0.71 xxxxx xxxx xxxxx

Level Of Service Module:

2Way95thQ: xxxx xxxx xxxx xxxx xxxx 4.8 xxxxx xxxx xxxxx

Control Del:xxxxx xxxx xxxxx xxxxx xxxxx 49.2 xxxxx xxxx xxxxx

LOS by Move: \* \* \* \* \* E \* \* \*

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx xxxx xxxx xxxx xxxx xxxxx xxxxx xxxxx xxxxx

Shared Queue:xxxxx xxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx

Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx

Shared LOS: \* \* \* \* \* 49.2 \* \* \* \* \*

ApproachDel: xxxxxx \* \* \* \* \*

ApproachLOS: \* \* \* \* \* E \* \* \*

Note: Queue reported is the number of cars per lane.

19th Ave CS

Tier 1

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1160 19th / Holloway

Cycle (sec): 100 Critical Vol./Cap.(X): 0.778

Loss Time (sec): 9 Average Delay (sec/veh): 25.7

Optimal Cycle: 100 Level Of Service: C

Street Name: 19th Holloway

Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - RControl: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include

Min. Green: 0 59 59 0 59 59 32 32 32 32

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 2 1 0 0 0 3 0 1 0 1 0 0 1 0 1 0

Volume Module:

Base Vol: 0 2096 105 0 2538 96 61 96 64 36 148 34

Growth Adj: 1.23 1.12 1.15 1.18 1.18 1.27 1.15 1.19 1.18 1.27 1.35 1.23

Initial Bse: 0 2338 121 0 2991 122 70 114 76 46 200 42

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 2338 121 0 2991 122 70 114 76 46 200 42

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97

PHF Volume: 0 2410 125 0 3084 125 72 118 78 47 207 43

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 2410 125 0 3084 125 72 118 78 47 207 43

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 0 2410 125 0 3084 125 72 118 78 47 207 43

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 1.00 0.89 0.89 1.00 0.89 0.83 0.70 0.70 0.70 0.78 0.78 0.78

Lanes: 0.00 2.85 0.15 0.00 3.00 1.00 0.54 0.88 0.58 0.32 1.39 0.29

Final Sat.: 0 4799 248 0 5083 1583 716 1164 772 472 2073 434

Capacity Analysis Module:

Vol/Sat: 0.00 0.50 0.50 0.00 0.61 0.08 0.10 0.10 0.10 0.10 0.10 0.10

Crit Moves: 0.00 0.59 0.59 0.00 0.59 0.59 0.32 0.32 0.32 0.32 0.32 0.32

Green/Cycle: 0.00 0.85 0.85 0.00 1.03 0.13 0.32 0.32 0.32 0.31 0.31 0.31

Volume/Cap: 0.00 13.4 13.4 0.0 36.4 5.8 26.7 26.7 26.7 26.5 26.5 26.5

Delay/Veh: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

User DelAdj: 0.0 13.4 13.4 0.0 36.4 5.8 26.7 26.7 26.7 26.5 26.5 26.5

AdjDel/Veh: 0.0 18 18 0 43 1 3 3 3 4 4 4

LOS by Move: A B B A D A C C C C C C

HCM2kAvgQ: 0 18 18 0 43 1 3 3 3 4 4 4

Note: Queue reported is the number of cars per lane.

19th Ave CS

Tier 1

## Level of Service Computation Report

## 2000 HCM Operations Method (Future Volume Alternative)

Intersection #1270 Lake Merced / Brotherhood

Cycle (sec): 107 Critical Vol./Cap.(X): 1.983  
Loss Time (sec): 15 Average Delay (sec/veh): 59.2  
Optimal Cycle: 180 Level Of Service: E

Street Name: Lake Merced Brotherhood

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control:	Permitted	Protected	Include	Split Phase	Split Phase	Include
Rights:	WideBypass					
Min. Green:	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
Y+R:	5.0 5.0 5.0	5.0 5.0 5.0	5.0 5.0 5.0	5.0 5.0 5.0	5.0 5.0 5.0	5.0 5.0 5.0
Lanes:	0 0 2 0 1	2 0 1 0 0	0 0 0 0 0	1 0 0 0 1		

## Volume Module:

Base Vol:	0	535	223	1076	498	0	0	0	216	0	1034
Growth Adj:	1.71	1.12	1.14	1.17	1.18	1.74	1.14	1.16	1.17	1.74	2.31
Initial Bse:	0	597	254	1260	587	0	0	0	376	0	1769
Added Vol:	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	597	254	1260	587	0	0	0	376	0	1769
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	0	615	262	1299	0	0	0	0	388	0	1824
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	615	262	1299	0	0	0	0	388	0	1824
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	0	615	262	1299	0	0	0	0	388	0	1824

## Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.93	0.83	0.90	1.00	1.00	1.00	1.00	1.00	0.93	1.00
Lanes:	0.00	2.00	1.00	2.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00
Final Sat.:	0	3538	1583	3432	1900	0	0	0	1769	0	1583

## Capacity Analysis Module:

Vol/Sat:	0.00	0.17	0.17	0.38	0.00	0.00	0.00	0.00	0.22	0.00	1.15
Crit Moves:	Green/Cycle:	0.21	0.21	0.21	0.43	0.68	0.00	0.00	0.22	0.22	1.00
Volume/Cap:	0.00	0.85	0.81	0.88	0.00	0.00	0.00	0.00	0.98	0.00	1.15
Delay/Veh:	0.0	52.5	59.3	31.9	0.0	0.0	0.0	0.0	81.2	0.0	76.3
User Del Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Del/Veh:	0.0	52.5	59.3	31.9	0.0	0.0	0.0	0.0	81.2	0.0	76.3
LOS by Move:	A	D	E	C	A	A	A	A	A	F	A
HCM2 KAVG:	0	13	10	22	0	0	0	0	18	0	36

Note: Queue reported is the number of cars per lane.

Tier 2 Conditions  
Weekday AM Peak Hour



Tier 3 AM Mon Jan 4, 2010 09:20:20 Page 26-1  
19th Ave CS  
Tier 3  
Level of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)  
Intersection #1222 Skyline / Lake Merced (WBLT)  
Average Delay (sec/veh): 1.5 Worst Case Level Of Service: F (52.8)  
Street Name: Skyline  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Uncontrolled Uncontrolled Uncontrolled Uncontrolled  
Rights: Include Include Include Include  
Lanes: 1 0 1 1 0 0 0 2 0 1 0 0 0 0 1 0 1 0 0  
Volume Module:  
Base Vol: 5 814 90 0 423 33 0 0 0 43 5 0  
Growth Adj: 1.23 1.42 1.30 1.09 1.00 1.02 1.30 1.18 1.09 1.02 1.04 1.23  
Initial Bse: 6 1155 117 0 424 34 0 0 0 44 5 0  
Added Vol: 0 1 0 0 3 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 6 1156 117 0 427 34 0 0 0 44 5 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 6 1179 119 0 436 34 0 0 0 45 5 0  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
FinalVolume: 6 1179 119 0 436 34 0 0 0 45 5 0  
Critical Gap Module:  
Critical Gap: 4.1 xxxxx xxxxx xxxxx xxxxx xxxxx 6.8 6.5 xxxxx  
FollowUpTim: 2.2 xxxxx xxxxx xxxxx xxxxx xxxxx 3.5 4.0 xxxxx  
Capacity Module:  
Conflict Vol: 470 xxxxx xxxxx xxxxx xxxxx 1470 1722 xxxxx  
Potent Cap.: 1088 xxxxx xxxxx xxxxx xxxxx 118 88 xxxxx  
Move Cap.: 1088 xxxxx xxxxx xxxxx xxxxx 118 88 xxxxx  
Volume/Cap: 0.01 xxxxx xxxxx xxxxx xxxxx 0.38 0.06 xxxxx  
Level of Service Module:  
2Way95thQ: 0.0 xxxxx xxxxx xxxxx xxxxx 1.6 0.2 xxxxx  
Control Del: 8.3 xxxxx xxxxx xxxxx xxxxx 53.3 48.6 xxxxx  
LOS by Move: A \* \* \* \* \* F E \*  
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Shared Queue: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
Shrd ConDel: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
Shared LOS: \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \*  
ApproachDel: xxxxxx xxxxxx 52.8  
ApproachLOS: \* \* \* \* \* F  
Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

Tier 3 AM Mon Jan 4, 2010 09:20:20 Page 25-1  
19th Ave CS  
Tier 3  
Level of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)  
Intersection #1221 Skyline / Lake Merced (WBR)  
Average Delay (sec/veh): 1.4 Worst Case Level Of Service: C (15.1)  
Street Name: Skyline  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Uncontrolled Uncontrolled Uncontrolled Uncontrolled  
Rights: Include Include Include Include  
Lanes: 0 0 2 0 0 1 0 2 0 0 0 0 0 0 0 0 0 1  
Volume Module:  
Base Vol: 0 814 0 90 456 0 0 0 0 0 0 75  
Growth Adj: 1.23 1.42 1.30 1.09 1.00 1.02 1.30 1.18 1.09 1.02 1.04 1.23  
Initial Bse: 0 1156 0 98 456 0 0 0 0 0 0 92  
Added Vol: 0 1 0 0 3 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 1157 0 98 459 0 0 0 0 0 0 92  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 1180 0 100 468 0 0 0 0 0 0 94  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
FinalVolume: 0 1180 0 100 468 0 0 0 0 0 0 94  
Critical Gap Module:  
Critical Gap: 4.1 xxxxx xxxxx xxxxx xxxxx xxxxx 6.9  
FollowUpTim: 2.2 xxxxx xxxxx xxxxx xxxxx xxxxx 3.3  
Capacity Module:  
Conflict Vol: 1180 xxxxx xxxxx xxxxx xxxxx 590  
Potent Cap.: 587 xxxxx xxxxx xxxxx xxxxx 451  
Move Cap.: 587 xxxxx xxxxx xxxxx xxxxx 451  
Volume/Cap: 0.17 xxxxx xxxxx xxxxx xxxxx 0.21  
Level of Service Module:  
2Way95thQ: xxxxx xxxxx xxxxx xxxxx xxxxx 0.8  
Control Del: xxxxx xxxxx xxxxx xxxxx xxxxx 15.1  
LOS by Move: \* \* \* \* \* B \* \* \* \* \* C  
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Shared Queue: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
Shrd ConDel: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
Shared LOS: \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \*  
ApproachDel: xxxxxx xxxxxx 15.1  
ApproachLOS: \* \* \* \* \* C  
Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*



Tier 3 AM	Mon Jan 4, 2010 09:20:20	Page 29-1
19th Ave CS Tier 3		
Level Of Service Computation Report 2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1250 Lake Merced / Font		
Cycle (sec):	90	Critical Vol./Cap.(X): 1.471
Loss Time (sec):	7	Average Delay (sec/veh): 171.6
Optimal Cycle:	180	Level Of Service: F
Street Name: Lake Merced Font		
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Permitted	Protected
Rights:	Ignore	Include
Min. Green:	43 43 43	15 61 61
Y+R:	7.0 7.0 7.0	7.0 7.0 7.0
Lanes:	0 0 2 0 1	1 0 2 0 0
Volume Module:		
Base Vol:	0 1746 48	147 1549
Growth Adj:	1.09 1.14 1.07	1.05 1.09 1.07
Initial Bse:	0 1985 51	154 1692
Added Vol:	0 342 21	193 109
PasserByVol:	0 0 0	0 0 0
Initial Fut:	0 2327 72	347 1801
User Adj:	1.00 1.00 0.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.00	0.98 0.98 0.98
PHF Volume:	0 2374 0	354 1837
Reduc Vol:	0 0 0	0 0 0
Reduced Vol:	0 2374 0	354 1837
PCE Adj:	1.00 1.00 0.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 0.00	1.00 1.00 1.00
FinalVolume:	0 2374 0	354 1837
Saturation Flow Module:		
Sat/Lane:	1900 1900	1900 1900
Adjustment:	1.00 0.93	1.00 0.93
Lanes:	0.00 2.00	1.00 2.00
Final Sat.:	0 3538	1900 1769
Capacity Analysis Module:		
Vol/Sat:	0.00 0.67	0.20 0.52
Crit Moves:	0.48 0.48	0.17 0.68
Green/Cycle:	0.00 1.40	0.00 1.20
Volume/Cap:	0.0 204	0.0 156.1
Delay/Veh:	0.0 204	0.0 156.1
User DelAdj:	1.00 1.00	1.00 1.00
AdjDel/Veh:	0.0 204	0.0 156.1
LOS by Move:	A F A A A A	A A A A A A
HCM2kAvgQ:	0 60	20 11
Note: Queue reported is the number of cars per lane.		

Tier 3 AM	Mon Jan 4, 2010 09:20:20	Page 30-1
19th Ave CS Tier 3		
Level Of Service Computation Report 2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1263 Lake Merced / Higuera		
Cycle (sec):	90	Critical Vol./Cap.(X): 1.202
Loss Time (sec):	11	Average Delay (sec/veh): 140.7
Optimal Cycle:	180	Level Of Service: F
Street Name: Lake Merced Higuera		
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Permitted	Protected
Rights:	Include	Include
Min. Green:	41 41 41	11 59 59
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 1 1 0	1 0 2 0 0
Volume Module:		
Base Vol:	0 1694 144	41 1601
Growth Adj:	1.12 1.14 1.11	1.09 1.09 1.10
Initial Bse:	0 1925 160	45 1748
Added Vol:	0 96 97	69 60
PasserByVol:	0 0 0	0 0 0
Initial Fut:	0 2021 257	114 1808
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	0 2063 262	116 1845
Reduc Vol:	0 0 0	0 0 0
Reduced Vol:	0 2063 262	116 1845
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00
FinalVolume:	0 2063 262	116 1845
Saturation Flow Module:		
Sat/Lane:	1900 1900	1900 1900
Adjustment:	1.00 0.92	0.93 0.93
Lanes:	0.00 1.77	1.00 2.00
Final Sat.:	0 3086	392 1769
Capacity Analysis Module:		
Vol/Sat:	0.00 0.67	0.07 0.52
Crit Moves:	0.46 0.46	0.12 0.66
Green/Cycle:	0.00 1.47	0.54 0.80
Volume/Cap:	0.0 234	46.3 7.6
Delay/Veh:	0.0 234	46.3 7.6
User DelAdj:	1.00 1.00	1.00 1.00
AdjDel/Veh:	0.0 234	46.3 7.6
LOS by Move:	A F F D A A	A A A A A A
HCM2kAvgQ:	0 82	82 3
Note: Queue reported is the number of cars per lane.		



Tier 3 AM Mon Jan 4, 2010 09:20:20 Page 31-1

-----

19th Ave CS  
Tier 3

-----

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1270 Lake Merced / Brotherhood

\*\*\*\*\*

Cycle (sec): 107 Critical Vol./Cap.(X): 2.246

Loss Time (sec): 15 Average Delay (sec/veh): 140.2

Optimal Cycle: 180 Level Of Service: F

\*\*\*\*\*

Street Name: Lake Merced Brotherhood

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

-----

Control:	Permitted	Protected	Split Phase	Split Phase
Rights:	WideBypass	Include	Include	Include
Min. Green:	0	0	0	0
*Y+R:	5.0	5.0	5.0	5.0
Lanes:	0 0 2 0 1	2 0 1 0 0	0 0 0 0 0	1 0 0 0 1

-----

Volume Module:

Base Vol:	0	416	209	1478	225	0	0	0	139	0	1483
Growth Adj:	1.13	1.14	1.29	1.26	1.09	1.11	1.29	1.44	1.26	1.11	1.12
Initial Bse:	0	473	269	1868	246	0	0	0	0	154	0
Added Vol:	0	117	-18	259	274	0	0	0	0	-16	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	590	251	2127	520	0	0	0	0	138	0
User Adj:	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	0	602	256	2171	0	0	0	0	0	141	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	602	256	2171	0	0	0	0	0	141	0

-----

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.93	0.83	0.90	1.00	1.00	1.00	1.00	1.00	0.83
Lanes:	0.00	2.00	1.00	2.00	1.00	0.00	0.00	0.00	0.00	1.00
Final Sat.:	0	3538	1583	3432	1900	0	0	0	0	1769

-----

Capacity Analysis Module:

Vol/Sat:	0.00	0.17	0.16	0.63	0.00	0.00	0.00	0.00	0.08	0.00
Crit Moves:	0.21	0.21	0.21	0.43	0.68	0.00	0.00	0.00	0.22	0.22
Green/Cycle:	0.00	0.83	0.79	1.47	0.00	0.00	0.00	0.00	0.35	0.00
Volume/Cap:	0.0	51.1	57.6	242.0	0.0	0.0	0.0	0.0	37.4	0.0
Delay/Veh:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
User DelAdj:	0.0	51.1	57.6	242.0	0.0	0.0	0.0	0.0	37.4	0.0
AdjDel/Veh:	A	D	E	F	A	A	A	A	D	A
LOS by Move:	0	12	10	81	0	0	0	0	4	0
HCM2kAVGQ:	0	12	10	81	0	0	0	0	4	0

-----

Note: Queue reported is the number of cars per lane.

Tier 3 Conditions  
Weekday PM Peak Hour

19th Ave CS  
Tier 3

Impact Analysis Report  
Level Of Service

Intersection	Base				Future				Change in
	Del/		V/		Del/		V/		
	LOS	A	Veh	C	LOS	A	Veh	C	
#1010 Claremont / Taraval / Dewey	/	A	7.1	0.653			7.4	0.672	+ 0.020 V/C
#1020 Santa Clara / Portola / Vicent		C	30.5	0.841		D	39.0	0.936	+ 8.525 D/V
#1030 Junipero Serra / Sloat / West		F	101.4	1.113		F	117.2	1.170	+15.817 D/V
#1040 Junipero Serra / Ocean / Euca1		D	39.7	0.820		E	70.2	1.063	+30.533 D/V
#1050 Junipero Serra / Winston / Mer		C	30.4	0.678		D	49.3	1.062	+18.865 D/V
#1060 Junipero Serra / Holloway		C	30.4	0.692		D	37.4	0.724	+ 7.049 D/V
#1070 Junipero Serra / 19th		F	110.5	1.236		F	163.1	1.302	+52.549 D/V
#1075 Junipero Serra / Chumasero		A	2.8	0.723		A	8.2	0.842	+ 5.362 D/V
#1080 Junipero Serra / I-280 NB On-R		F	129.3	1.294		F	151.9	1.400	+22.632 D/V
#1090 Junipero Serra / I-280 SB On-R		D	49.9	1.054		F	89.9	1.172	+40.016 D/V
#1100 19th / Taraval		B	19.4	0.839		C	24.0	0.883	+ 4.578 D/V
#1110 19th / Sloat		F	127.7	1.550		F	154.7	1.630	+26.999 D/V
#1120 19th / Ocean		F	146.9	1.568		F	180.5	1.633	+33.636 D/V
#1130 19th / Euca1yptus		E	69.7	1.079		F	86.4	1.180	+16.707 D/V
#1140 19th / Winston		F	97.7	1.325		F	207.7	1.699	+109.967 D/
#1150 19th / Buckingham		F	408.9	1.759		F	604.0	2.196	+195.131 D/
#1160 19th / Holloway		B	16.9	0.866		F	120.8	1.027	+103.936 D/
#1170 19th / Crespi		D	50.4	0.759		E	69.9	0.785	+19.468 D/V
#1181 Chumasero / Brotherhood		F	227.7	1.105		F	456.6	1.738	+228.905 D/
#1190 Sunset / Taraval		D	49.8	0.843		F	125.6	0.960	+75.784 D/V
#1200 Sunset / Ocean		B	13.3	0.687		C	30.5	0.827	+17.163 D/V
#1210 Skyline / Sloat / 39th		D	27.0	0.908		D	29.4	0.925	+ 0.017 V/C
#1221 Skyline / Lake Merced (WBR)		C	17.4	0.416		C	17.5	0.417	+ 0.048 D/V
#1222 Skyline / Lake Merced (WBLT)		F	116.8	0.894		F	118.6	0.900	+ 1.760 D/V

19th Ave CS  
Tier 3

Intersection

#1230 Sunset / Lake Merced	F	OVRFL	1.328	F	OVRFL	2.491	Nan	D/V
#1240 Lake Merced / Winston	E	66.6	0.971	F	188.9	1.372	+122.395	D/
#1250 Lake Merced / Font	D	46.9	0.783	F	209.4	1.643	+162.431	D/
#1263 Lake Merced / Higuera	E	79.1	0.844	F	226.5	1.566	+147.310	D/
#1270 Lake Merced / Brotherhood	F	139.0	2.430	F	213.0	2.861	+74.026	D/V



Tier 3 PM		Thu Feb 4, 2010 13:44:56		Page 3-1								
19th Ave CS		Tier 3										
Level Of Service Computation Report												
FHWA Roundabout Method (Future Volume Alternative)												
Intersection #1010 Claremont / Taraval / Dewey / Kensington												
Average Delay (sec/veh): 7.4 Level Of Service: A												
Street Name: Claremont Taraval / Dewey												
Approach: North Bound South Bound East Bound West Bound												
Movement: L - T - R L - T - R L - T - R L - T - R												
Control: Yield Sign Yield Sign Yield Sign Yield Sign												
Lanes: 1 1 1 1												
Volume Module:												
Base Vol:	17	24	239	50	63	5	10	259	55	324	338	31
Growth Adj:	1.09	1.10	1.07	1.06	1.09	1.08	1.07	1.04	1.06	1.08	1.08	1.09
Initial Bse:	18	26	255	53	69	5	11	269	59	351	364	34
Added Vol:	1	0	16	0	0	0	0	0	0	22	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	19	26	271	53	69	5	11	269	59	373	364	34
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	20	27	277	54	70	6	11	275	60	381	371	34
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	20	27	277	54	70	6	11	275	60	381	371	34
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	20	27	277	54	70	6	11	275	60	381	371	34
PCE Module:												
AutoPCE:	20	27	277	54	70	6	11	275	60	381	371	34
TruckPCE:	0	0	0	0	0	0	0	0	0	0	0	0
ComboPCE:	0	0	0	0	0	0	0	0	0	0	0	0
BicyclePCE:	0	0	0	0	0	0	0	0	0	0	0	0
AdjVolume:	20	27	277	54	70	6	11	275	60	381	371	34
Delay Module: >> Time Period: 0.25 hours <<												
CircVolume:	340		771		505					58		
MaxVolume:	1016		783		927					1169		
PedVolume:	0		0		0					0		
AdjMaxVol:	1016		783		927					1169		
ApproachVol:	324		130		345					786		
ApproachV/C:	0.32		0.17		0.37					0.67		
ApproachDel:	5.2		5.5		6.2					9.2		
ApproachLOS:	A		A		A					A		
Queue:	1.4		0.6		1.7					5.5		
Traffic 8.0.0715 (c) 2009 Dowling Assoc. Licensed to AECOM, LOS ANGELES												

Tier 3 PM		Thu Feb 4, 2010 13:44:56				Page 4-1							
19th Ave CS		Tier 3											
Level Of Service Computation Report													
2000 HCM Operations Method (Future Volume Alternative)													
Intersection #1020 Santa Clara / Portola / Vicente													
Cycle (sec):		80		Critical Vol./Cap.(X):		0.936							
Loss Time (sec):		11		Average Delay (sec/veh):		39.0							
Optimal Cycle:		111		Level Of Service:		D							
Street Name: Santa Clara / Vicente Portola													
Approach:		North Bound		South Bound		East Bound		West Bound					
Movement:		L - T - R		L - T - R		L - T - R		L - T - R					
Control:		Permitted		Permitted		Protected		Protected					
Rights:		Include		Include		Include		Include					
Min. Green:		23	23	23	23	23	9	36	36				
Y+R:		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Lanes:		0	0	1	0	0	1	0	1				
Volume Module:													
Base Vol:		22	273	85	86	191	48	48	1051	33	147	987	108
Growth Adj:		1.03	1.00	1.03	1.07	1.03	1.07	1.03	1.10	1.07	1.07	1.10	1.03
Initial Bse:		23	273	88	92	198	51	50	1155	35	157	1087	112
Added Vol:		0	0	0	15	0	4	0	147	0	0	246	0
PasserByVol:		0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:		23	273	88	107	198	55	50	1302	35	157	1333	112
User Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:		0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:		23	279	90	109	202	56	51	1329	36	160	1360	114
Reduc Vol:		0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:		23	279	90	109	202	56	51	1329	36	160	1360	114
PCE Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:		23	279	90	109	202	56	51	1329	36	160	1360	114
Saturation Flow Module:													
Sat/Lane:		1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:		0.92	0.92	0.92	0.59	0.59	0.59	0.93	0.93	0.93	0.93	0.92	0.92
Lanes:		0.06	0.71	0.23	0.30	0.55	0.15	1.00	1.95	0.05	1.00	1.85	0.15
Final Sat:		104	1246	401	331	612	171	1769	3431	93	1769	3225	270
Capacity Analysis Module:													
Vol/Sat:		0.22	0.22	0.22	0.33	0.33	0.33	0.03	0.39	0.39	0.09	0.42	0.42
Crit Moves:		0.30	0.30	0.30	0.10	0.30	0.30	0.11	0.45	0.45	0.11	0.45	0.45
Green/Cycle:		0.75	0.75	1.10	1.10	1.10	1.10	0.25	0.86	0.86	0.80	0.94	0.94
Volume/Cap:		34.5	34.5	106.1	106.1	106.1	106.1	35.5	26.1	26.1	62.9	32.9	32.9
Delay/Veh:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
User DelAdj:		34.5	34.5	106.1	106.1	106.1	106.1	35.5	26.1	26.1	62.9	32.9	32.9
AdjDel/Veh:		34.5	34.5	106.1	106.1	106.1	106.1	35.5	26.1	26.1	62.9	32.9	32.9
LOS by Move:		C	C	C	F	F	F	D	C	C	E	C	C
HCM2KavgQ:		10	10	10	17	17	17	1	19	19	6	24	24
Note: Queue reported is the number of cars per lane.													
Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES													

19th Ave CS

Tier 3

## Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\* Intersection #1030 Junipero Serra / Sloat / West Portal / St. Francis \*\*\*\*\*

\*\*\*\*\* Cycle (sec): 105 Critical Vol./Cap.(X): 1.170 \*\*\*\*\*

\*\*\*\*\* Loss Time (sec): 16 Average Delay (sec/veh): 117.2 \*\*\*\*\*

\*\*\*\*\* Optimal Cycle: 180 Level Of Service: F \*\*\*\*\*

\*\*\*\*\* Street Name: Junipero Serra / West Portal Sloat / St. Francis \*\*\*\*\*

\*\*\*\*\* Approach: North Bound South Bound East Bound West Bound \*\*\*\*\*

\*\*\*\*\* Movement: L - T - R L - T - R L - T - R L - T - R \*\*\*\*\*

\*\*\*\*\* Control: Protected Permitted Split Phase Split Phase \*\*\*\*\*

\*\*\*\*\* Rights: Include Include Include Include \*\*\*\*\*

\*\*\*\*\* Min. Green: 16 53 53 32 32 32 15 15 15 20 20 20 \*\*\*\*\*

\*\*\*\*\* Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 \*\*\*\*\*

\*\*\*\*\* Lanes: 3 0 1 0 0 0 2 1 0 3 0 1 0 1 0 1 0 \*\*\*\*\*

\*\*\*\*\* Volume Module: \*\*\*\*\*

Base Vol: 1027 1005 60 0 1045 261 852 420 471 20 405 10

Growth Adj: 1.13 1.12 1.10 1.13 1.18 1.16 1.10 1.08 1.13 1.16 1.15 1.13

Initial Bse: 1162 1121 66 0 1232 303 937 455 533 23 464 11

Added Vol: 33 120 0 0 209 0 2 0 29 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 1195 1241 66 0 1441 303 939 455 562 23 464 11

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 1219 1266 67 0 1470 310 958 464 0 24 474 12

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 1219 1266 67 0 1470 310 958 464 0 24 474 12

\*\*\*\*\* Saturation Flow Module: \*\*\*\*\*

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 0.89 0.92 0.92 1.00 0.88 0.88 0.89 0.97 1.00 0.93 0.93

Lanes: 3.00 1.90 0.10 0.00 2.48 0.52 3.00 1.00 1.00 0.09 1.86 0.05

Final Sat.: 5096 3302 176 0 4130 870 5096 1843 1900 164 3276 80

\*\*\*\*\* Capacity Analysis Module: \*\*\*\*\*

Vol/Sat: 0.24 0.38 0.38 0.00 0.36 0.36 0.19 0.25 0.00 0.14 0.14

Crit Moves: \*\*\*\*

Green/Cycle: 0.17 0.48 0.48 0.00 0.30 0.30 0.18 0.18 0.00 0.19 0.19

Volume/Cap: 1.39 0.80 0.80 0.00 1.17 1.17 1.04 1.39 0.00 0.76 0.76

Delay/Veh: 227.4 23.0 23.0 0.0 119 118.7 83.6 238 0.0 48.1 48.1

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 227.4 23.0 23.0 0.0 119 118.7 83.6 238 0.0 48.1 48.1

LOS by Move: F C C A F F F A D D D

HCM2KavgQ: 28 17 17 0 36 36 17 33 0 10 10

\*\*\*\*\* Note: Queue reported is the number of cars per lane. \*\*\*\*\*

19th Ave CS

Tier 3

## Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\* Intersection #1040 Junipero Serra / Ocean / Eucalyptus \*\*\*\*\*

\*\*\*\*\* Cycle (sec): 100 Critical Vol./Cap.(X): 1.063 \*\*\*\*\*

\*\*\*\*\* Loss Time (sec): 14 Average Delay (sec/veh): 70.2 \*\*\*\*\*

\*\*\*\*\* Optimal Cycle: 180 Level Of Service: E \*\*\*\*\*

\*\*\*\*\* Street Name: Junipero Serra Ocean / Eucalyptus \*\*\*\*\*

\*\*\*\*\* Approach: North Bound South Bound East Bound West Bound \*\*\*\*\*

\*\*\*\*\* Movement: L - T - R L - T - R L - T - R L - T - R \*\*\*\*\*

\*\*\*\*\* Control: Protected Protected Permitted Permitted \*\*\*\*\*

\*\*\*\*\* Rights: Include Include Include Include \*\*\*\*\*

\*\*\*\*\* Min. Green: 11 43 43 16 48 48 27 27 27 27 27 27 \*\*\*\*\*

\*\*\*\*\* Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 \*\*\*\*\*

\*\*\*\*\* Lanes: 1 0 2 1 0 2 0 2 1 0 1 1 0 1 0 1 0 1 \*\*\*\*\*

\*\*\*\*\* Volume Module: \*\*\*\*\*

Base Vol: 176 1567 35 356 1065 96 140 356 58 77 332 333

Growth Adj: 1.13 1.12 1.10 1.13 1.18 1.16 1.10 1.08 1.13 1.16 1.15 1.13

Initial Bse: 199 1748 38 403 1255 112 154 386 66 90 381 377

Added Vol: 0 107 43 35 194 9 12 91 0 25 66 34

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 199 1855 81 438 1449 121 166 477 66 115 447 411

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 203 1893 83 446 1479 123 169 486 67 117 456 419

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 203 1893 83 446 1479 123 169 486 67 117 456 419

\*\*\*\*\* Saturation Flow Module: \*\*\*\*\*

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 0.92 0.97 0.88 0.90 0.88 0.88 0.63 0.63 0.83 0.63 0.63

Lanes: 1.00 2.86 0.14 2.00 2.77 0.23 0.52 1.48 1.00 0.20 0.80 1.00

Final Sat.: 1751 5249 231 3432 4636 386 616 1770 1583 244 951 1583

\*\*\*\*\* Capacity Analysis Module: \*\*\*\*\*

Vol/Sat: 0.12 0.36 0.36 0.13 0.32 0.32 0.27 0.27 0.04 0.48 0.48

Crit Moves: \*\*\*\*

Green/Cycle: 0.11 0.43 0.43 0.16 0.48 0.48 0.27 0.27 0.38 0.27 0.27

Volume/Cap: 1.05 0.84 0.84 0.81 0.66 0.66 1.02 1.02 0.11 1.77 1.77

Delay/Veh: 124.5 25.6 25.6 53.0 17.3 17.3 76.5 76.5 20.4 397.3 397.3

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 124.5 25.6 25.6 53.0 17.3 17.3 76.5 76.5 20.4 397.3

LOS by Move: F C C D B B E C F C

HCM2KavgQ: 8 18 17 6 10 10 17 17 1 49 49

\*\*\*\*\* Note: Queue reported is the number of cars per lane. \*\*\*\*\*

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1050 Junipero Serra / Winston / Mercedes

Cycle (sec): 100 Critical Vol./Cap.(X): 1.062  
Loss Time (sec): 14 Average Delay (sec/veh): 49.3  
Optimal Cycle: 180 Level Of Service: D

Street Name: Junipero Serra Winston / Mercedes  
Approach: North Bound South Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control:	Protected	Protected	Protected	Permitted	Permitted
Rights:	WideBypass	Include	Include	Include	Include
Min. Green:	19 40 40	19 40 40	27 27 27	27 27 27	27 27 27
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	1 0 2 1 0	1 0 2 1 0	1 0 1 0 1	1 0 1 0 1	1 0 1 0 1

Volume Module:	224 1516	52 85 1130	117 169 152	81 74 103	36
Base Vol:	1.05 1.12	1.11 1.15 1.18	1.08 1.11 1.11	1.15 1.08 1.00	1.05
Growth Adj:	236 1691	58 97 1332	127 188 169	93 80 103	38
Initial Bse:	73 15	2 1 62	156 135 157	48 1 133	0
Added Vol:	0 0 0	0 0 0	0 0 0	0 0 0	0
PasserByVol:	309 1706	60 98 1394	283 323 326	141 81 236	38
Initial Fut:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00
User Adj:	0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98
PHF Adj:	315 1741	61 100 1422	289 330 333	144 83 241	39
PHF Volume:	0 0 0	0 0 0	0 0 0	0 0 0	0
Reduc Vol:	315 1741	61 100 1422	289 330 333	144 83 241	39
Reduced Vol:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00
PCE Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00
MLF Adj:	315 1741	61 100 1422	289 330 333	144 83 241	39
FinalVolume:	315 1741	61 100 1422	289 330 333	144 83 241	39

Saturation Flow Module:	1900 1900	1900 1900	1900 1900	1900 1900	1900
Sat/Lane:	0.93 0.89	0.89 0.93 0.87	0.87 0.44 0.98	0.83 0.30 0.98	0.83
Adjustment:	1.00 2.90	0.10 1.00 2.49	0.51 1.00 1.00	1.00 1.00 1.00	1.00
Lanes:	1769 4886	172 1769 4120	836 845 1862	1583 579 1862	1583
Final Sat:	0.06 0.35	0.35 0.39 0.18	0.09 0.14 0.13	0.02	0.02

Capacity Analysis Module:	0.18 0.36	0.36 0.06 0.35	0.35 0.39 0.18	0.09 0.14 0.13	0.02
Vol/Sat:	0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	0.00
Crit Moves:	0.19 0.40	0.40 0.19 0.40	0.40 0.27 0.27	0.27 0.27 0.27	0.27
Green/Cycle:	0.94 0.89	0.89 0.30 0.86	0.86 1.45 0.66	0.34 0.53 0.48	0.09
Volume/Cap:	75.4 31.4	31.4 37.0 29.9	29.9 259.9 39.2	31.4 43.4 33.8	27.7
Delay/Veh:	1.50 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00
User DelAdj:	75.4 31.4	31.4 37.0 29.9	29.9 259.9 39.2	31.4 43.4 33.8	27.7
AdjDel/Veh:	10 15	18 2 18	22 8 3	3 7 1	1
LOS by Move:	E C C	D C C	F D C	D C C	C
HC2kAvgQ:	10 15	18 2 18	22 8 3	3 7 1	1

Note: Queue reported is the number of cars per lane.

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1060 Junipero Serra / Holloway

Cycle (sec): 100 Critical Vol./Cap.(X): 0.724  
Loss Time (sec): 14 Average Delay (sec/veh): 37.4  
Optimal Cycle: 100 Level Of Service: D

Street Name: Junipero Serra Holloway  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control:	Protected	Protected	Protected	Permitted	Permitted
Rights:	Include	Include	Include	Include	Include
Min. Green:	19 39 39	19 39 39	28 28 28	28 28 28	28
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0
Lanes:	1 0 2 1 0	1 0 2 1 0	1 0 1 0 1	1 0 1 0 1	1

Volume Module:	183 1398	101 176 1001	104 117 140	23 143 96	107
Base Vol:	1.11 1.12	1.08 1.11 1.18	1.14 1.08 1.04	1.11 1.14 1.10	1.11
Growth Adj:	202 1559	109 195 1180	118 126 145	25 163 105	118
Initial Bse:	151 60	1 31 39	41 7 -21	0 1 0	23
Added Vol:	0 0 0	0 0 0	0 0 0	0 0 0	0
PasserByVol:	353 1619	110 226 1219	159 133 124	25 164 105	141
Initial Fut:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00
User Adj:	0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98
PHF Adj:	360 1652	112 230 1244	162 136 126	26 167 107	144
PHF Volume:	0 0 0	0 0 0	0 0 0	0 0 0	0
Reduc Vol:	360 1652	112 230 1244	162 136 126	26 167 107	144
Reduced Vol:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00
PCE Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00
MLF Adj:	360 1652	112 230 1244	162 136 126	26 167 107	144
FinalVolume:	360 1652	112 230 1244	162 136 126	26 167 107	144

Saturation Flow Module:	1900 1900	1900 1900	1900 1900	1900 1900	1900
Sat/Lane:	0.93 0.88	0.88 0.93 0.88	0.88 0.67 0.98	0.83 0.64 0.98	0.83
Adjustment:	1.00 2.81	0.19 1.00 2.65	0.35 1.00 1.00	1.00 1.00 1.00	1.00
Lanes:	1769 4718	319 1769 4419	577 1275 1862	1583 1218 1862	1583
Final Sat:	0.20 0.35	0.35 0.13 0.28	0.28 0.11 0.07	0.02 0.14 0.06	0.09

Capacity Analysis Module:	0.20 0.35	0.35 0.13 0.28	0.28 0.11 0.07	0.02 0.14 0.06	0.09
Vol/Sat:	0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	0.00
Crit Moves:	0.19 0.39	0.39 0.19 0.39	0.39 0.28 0.28	0.28 0.28 0.28	0.28
Green/Cycle:	1.07 0.90	0.90 0.69 0.72	0.72 0.38 0.24	0.06 0.49 0.21	0.33
Volume/Cap:	110.2 32.9	32.9 48.6 25.8	25.8 32.0 28.9	26.6 35.0 28.4	30.5
Delay/Veh:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00
User DelAdj:	110.2 32.9	32.9 48.6 25.8	25.8 32.0 28.9	26.6 35.0 28.4	30.5
AdjDel/Veh:	14 17	17 6 12	12 4 3	1 5 3	4
LOS by Move:	F C C	D C C	C C C	C C C	C
HC2kAvgQ:	14 17	17 6 12	12 4 3	1 5 3	4

Note: Queue reported is the number of cars per lane.



Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1070 Junipero Serra / 19th

Cycle (sec): 107  
Loss Time (sec): 17  
Optimal Cycle: 180  
Critical Vol./Cap.(X): 1.302  
Average Delay (sec/veh): 163.1  
Level of Service: F

Street Name: Junipero Serra

Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - RControl: Split Phase Split Phase Permitted Permitted  
Rights: Ignore Ignore Ovl Include  
Min. Green: 54 54 20 20 9 9 9 9  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 2 1 0 1 0 0 1 2 1 0 0 1 0 3 1 0 0 1 0

Volume Module:

Base Vol: 2410 1660 25 0 1178 17 0 123 3060 31 47 50  
Growth Adj: 1.09 1.12 1.06 1.09 1.18 1.12 1.06 1.01 1.09 1.12 1.06 1.09  
Initial Bse: 2621 1851 27 0 1388 19 0 124 3346 35 50 54  
Added Vol: 98 186 2 0 41 0 0 0 37 199 0 1 26  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 2719 2037 29 0 1429 19 0 161 3545 35 51 80  
User Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.00 0.98 0.98 0.00 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 2775 2079 0 0 1458 0 0 164 3617 35 52 82  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 2775 2079 0 0 1458 0 0 164 3617 35 52 82  
PCE Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 2775 2079 0 0 1458 0 0 164 3617 35 52 82

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.88 0.90 0.95 0.91 0.89 0.91 1.00 0.98 0.73 0.51 0.89 0.89  
Lanes: 2.32 1.68 0.00 0.00 4.00 0.00 0.00 1.00 3.00 1.00 0.39 0.61  
Final Sat.: 3863 2895 0 0 6778 0 0 1862 4178 966 655 1036

Capacity Analysis Module:

Vol/Sat: 0.72 0.72 0.00 0.00 0.22 0.00 0.00 0.09 0.87 0.04 0.08 0.08  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.50 0.50 0.20 0.20 0.20 0.14 0.14 0.14 0.68 0.14 0.14 0.14  
Volume/Cap: 1.44 1.44 0.00 0.00 1.08 0.00 0.00 0.63 1.27 0.26 0.57 0.57  
Delay/Veh: 217.3 217 0.0 0.0 87.7 0.0 0.0 51.6 131.1 43.0 49.6 49.6  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 217.3 217 0.0 0.0 87.7 0.0 0.0 51.6 131.1 43.0 49.6 49.6  
LOS by Move: F F A A F A A D F D D 5  
HCM2kAvgQ: 87 87 0 0 18 0 0 6 79 1 5 5

Note: Queue reported is the number of cars per lane.

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1080 Junipero Serra / I-280 NB On-Ramp / John Daly

Cycle (sec): 125  
Loss Time (sec): 12  
Optimal Cycle: 180  
Critical Vol./Cap.(X): 1.400  
Average Delay (sec/veh): 151.9  
Level of Service: F

Street Name: Junipero Serra

Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - RControl: Split Phase Split Phase Split Phase Split Phase  
Rights: Ovl Include Ovl  
Min. Green: 6 6 6 6 6 6 31 31 31 31  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 2 0 1 1 1 1 0 0 1 1 2 1 0 1 1 1 2 0 1

Volume Module:

Base Vol: 621 381 328 210 383 857 667 495 160 122 895 232  
Growth Adj: 1.19 1.13 1.11 1.28 1.47 1.36 1.11 1.09 1.28 1.36 1.25 1.19  
Initial Bse: 739 429 363 268 562 1167 738 537 204 166 1122 276  
Added Vol: 283 53 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 1022 482 363 268 562 1167 737 555 391 166 1122 290  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 1043 492 370 274 574 1190 752 567 399 169 1145 296  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 1043 492 370 274 574 1190 752 567 399 169 1145 296  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 1043 492 370 274 574 1190 752 567 399 169 1145 296

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.90 0.87 0.87 0.93 0.88 0.88 0.85 0.88 0.88 0.89 0.89 0.83  
Lanes: 2.00 1.71 1.29 1.00 0.65 1.35 2.22 1.63 1.15 1.00 3.00 1.00  
Final Sat.: 3432 2834 2133 1769 1089 2259 3608 2720 1916 1684 5053 1583

Capacity Analysis Module:

Vol/Sat: 0.30 0.17 0.17 0.15 0.53 0.53 0.21 0.21 0.21 0.10 0.23 0.19  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.19 0.19 0.33 0.33 0.33 0.57 0.25 0.25 0.25 0.14 0.14 0.47  
Volume/Cap: 1.61 0.92 0.53 0.47 1.61 0.92 0.84 0.84 0.84 0.72 1.61 0.40  
Delay/Veh: 333.3 63.8 34.4 34.1 322 31.3 47.9 47.9 47.9 52.7 335 22.2  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 333.3 63.8 34.4 34.1 322 31.3 47.9 47.9 47.9 52.7 335 22.2  
LOS by Move: F E C C F C D D D F C  
HCM2kAvgQ: 47 15 10 8 75 34 12 12 12 8 37 7

Note: Queue reported is the number of cars per lane.

Tier 3 PM	Thu Feb 4, 2010 13:44:56	Page 12-1							
-----									
19th Ave CS									
Tier 3									
-----									
Level Of Service Computation Report									
2000 HCM Operations Method (Future Volume Alternative)									
*****									
Intersection #1090 Junipero Serra / I-280 SB On-Ramp / John Daly									
*****									
Cycle (sec):	120	Critical Vol./Cap.(X):	1.172						
Loss Time (sec):	8	Average Delay (sec/veh):	89.9						
Optimal Cycle:	180	Level Of Service:	F						
*****									
Street Name:Junipero Serra / I-280 SB On-Ramp John Daly									
Approach:	North Bound	South Bound	East Bound	West Bound					
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Split Phase	Split Phase	Split Phase	Split Phase	Split Phase	Split Phase	Split Phase	Split Phase	Split Phase
Rights:	Ovl	Include	Include	Include	Include	Include	Include	Include	Include
Min. Green:	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 0 0 2	0 0 0 0 0	0 0 0 0 0	0 0 2 1 0	2 0 2 0 0	2 0 2 0 0	2 0 2 0 0	2 0 2 0 0	2 0 2 0 0
-----									
Volume Module:									
Base Vol:	0	350	0	0	0	972	427	722	1966
Growth Adj:	1.05	1.00	1.04	1.32	1.55	1.33	1.04	1.09	1.32
Initial Bse:	0	365	0	0	0	1058	563	958	2172
Added Vol:	0	34	0	0	0	171	36	0	283
PasserByVol:	0	0	0	0	0	0	0	0	0
Initial Fut:	0	399	0	0	0	1229	599	958	2455
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	0	408	0	0	0	1254	611	977	2505
Reduct Vol:	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	408	0	0	0	1254	611	977	2505
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	408	0	0	0	1254	611	977	2505
-----									
Saturation Flow Module:									
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	0.73	1.00	1.00	1.00	0.85	0.85	0.90
Lanes:	0.00	0.00	2.00	0.00	0.00	0.00	2.02	0.98	2.00
Final Sat:	0	0	2786	0	0	0	3250	1584	3432
-----									
Capacity Analysis Module:									
Vol/Sat:	0.00	0.00	0.15	0.00	0.00	0.00	0.39	0.39	0.28
Crit Moves:	0.00	0.00	0.00	0.00	0.00	0.33	0.33	0.60	0.60
Green/Cycle:	0.00	0.00	0.60	0.00	0.00	0.00	1.17	1.17	0.47
Volume/Cap:	0.00	0.00	0.24	0.00	0.00	0.00	1.17	1.17	0.47
Delay/Veh:	0.0	0.0	11.1	0.0	0.0	0.0	125	124.8	13.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	11.1	0.0	0.0	0.0	125	124.8	13.3
LOS by Move:	A	A	A	A	A	A	F	F	A
HCM2kAvgQ:	0	0	4	0	0	0	40	9	69
-----									
Note: Queue reported is the number of cars per lane.									
-----									
Traflix 8.0.0715 (c) 2009 Bowling Assoc. Licensed to AECOM, LOS ANGELES									

Tier 3 PM	Thu Feb 4, 2010 13:44:56	Page 13-1										
-----												
19th Ave CS												
Tier 3												
-----												
Level of Service Computation Report												
2000 HCM Operations Method (Future Volume Alternative)												
*****												
Intersection #1100 19th / Taraval												
*****												
Cycle (sec):	100	Critical Vol./Cap.(X):	0.883									
Loss Time (sec):	10	Average Delay (sec/veh):	24.0									
Optimal Cycle:	99	Level of Service:	C									
*****												
Street Name:	Taraval											
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	66	66	66	66	66	66	23	23	23	23	23	
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lanes:	0	0	2	1	0	0	2	1	0	0	1	
-----												
Volume Module:												
Base Vol:	0	2131	104	0	2591	31	3	331	84	22	336	
Growth Adj:	1.06	1.12	1.06	1.09	1.18	1.09	1.06	1.00	1.09	1.09	1.00	
Initial Bse:	0	2377	110	0	3053	34	3	331	91	24	336	
Added Vol:	0	201	2	0	202	0	0	0	0	0	0	
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	
Initial Fut:	0	2578	112	0	3255	34	3	331	91	24	336	
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
PHF Volume:	0	2630	114	0	3322	34	3	338	93	24	343	
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	
Reduced Vol:	0	2630	114	0	3322	34	3	338	93	24	343	
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
FinalVolume:	0	2630	114	0	3322	34	3	338	93	24	343	
-----												
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Adjustment:	1.00	0.89	0.89	1.00	0.89	0.89	0.86	0.86	0.86	0.83	0.83	
Lanes:	0.00	2.88	0.12	0.00	2.97	0.03	0.01	1.56	0.43	0.12	1.62	
Final Sat:	0	4842	210	0	5026	52	24	2538	701	182	2562	
-----												
Capacity Analysis Module:												
Vol/Sat:	0.00	0.54	0.54	0.00	0.66	0.66	0.13	0.13	0.13	0.13	0.13	
Crit Moves:	0.00	0.67	0.67	0.00	0.67	0.67	0.23	0.23	0.23	0.23	0.23	
Green/Cycle:	0.00	0.81	0.81	0.00	0.99	0.99	0.58	0.58	0.58	0.58	0.58	
Volume/Cap:	0.00	0.81	0.81	0.00	0.99	0.99	0.58	0.58	0.58	0.58	0.58	
Delay/Veh:	0.0	14.1	14.1	0.0	28.6	28.6	37.4	37.4	37.4	37.6	37.6	
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
AdjDel/Veh:	0.0	14.1	14.1	0.0	28.6	28.6	37.4	37.4	37.4	37.6	37.6	
LOS by Move:	A	B	B	A	C	C	D	D	D	D	D	
HCM2kAvgQ:	0	24	24	0	45	45	7	7	7	7	7	
-----												
Note: Queue reported is the number of cars per lane.												
-----												
Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES												

Tier 3 PM		Thu Feb 4, 2010 13:44:56		Page 14-1	
		19th Ave CS			
		Tier 3			
Level of Service Computation Report					
2000 HCM Operations Method (Future Volume Alternative)					
*****					
Intersection #110 19th / Sloat					
*****					
Cycle (sec):	100	Critical Vol./Cap.(X):		1.630	
Loss Time (sec):	9	Average Delay (sec/veh):		154.7	
Optimal Cycle:	180	Level Of Service:		F	
*****					
Street Name:	19th	Sloat			
Approach:	North Bound	South Bound	East Bound	West Bound	
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	- R - R
Control:	Permitted	Protected	Permit+Prot	Permitted	
Rights:	Include	Include	Include	Include	
Min. Green:	0 43 43 11 58 58 4 33 33 24 24 24				
Y+R:	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0				
Lanes:	0 0 2 1 0 1 0 2 1 0 1 1 1 0 0 0 3 0 1				
*****					
Volume Module:					
Base Vol:	0 2446 66 235 2609 321 185 1440 74 0 870 497				
Growth Adj:	1.13 1.12 1.10 1.13 1.18 1.16 1.10 1.08 1.13 1.16 1.15 1.13				
Initial Bse:	0 2728 73 266 3075 373 203 1560 84 0 998 562				
Added Vol:	0 164 2 16 170 18 22 13 0 0 13 47				
PasserByVol:	0 0 0 0 0 0 0 0 0 0 0 0				
Initial Fut:	0 2892 75 282 3245 391 225 1573 84 0 1011 609				
User Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00				
PHF Adj:	0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98				
PHF Volume:	0 2951 76 287 3311 399 230 1605 85 0 1031 622				
Reduced Vol:	0 0 0 0 0 0 0 0 0 0 0 0				
Reduced Vol:	0 2951 76 287 3311 399 230 1605 85 0 1031 622				
PCE Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00				
MLF Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00				
FinalVolume:	0 2951 76 287 3311 399 230 1605 85 0 1031 622				
*****					
Saturation Flow Module:					
Sat/Lane:	1900 1900 1900 1900 1900 1900 1900 1900 1900 1900				
Adjustment:	1.00 0.89 0.89 0.93 0.88 0.88 0.41 0.88 0.88 1.00 0.89 0.83				
Lanes:	0.00 2.92 0.08 1.00 2.68 0.32 1.00 2.85 0.15 0.00 3.00 1.00				
Final Sat.:	0 4936 127 1769 4464 538 782 4764 253 0 5083 1583				
*****					
Capacity Analysis Module:					
Vol/Sat:	0.00 0.60 0.60 0.16 0.74 0.74 0.29 0.34 0.34 0.00 0.20 0.39				
Crit Moves:	0.00 0.60 0.60 0.16 0.74 0.74 0.29 0.34 0.34 0.00 0.20 0.39				
Green/Cycle:	0.00 0.43 0.43 0.11 0.54 0.54 0.37 0.37 0.37 0.00 0.27 0.27				
Volume/Cap:	0.00 1.39 1.39 1.44 1.37 1.37 0.79 0.92 0.92 0.00 0.75 1.44				
Delay/Veh:	0.0 203 203.1 269.9 183 183.5 42.5 38.0 38.0 0.0 36.9 248.7				
User DelAdj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00				
AdjDel/Veh:	0.0 203 203.1 269.9 183 183.5 42.5 38.0 38.0 0.0 36.9 248.7				
LOS by Move:	A F F F F F F F F F F F				
HCM2kAvgQ:	0 70 70 22 87 87 9 22 22 0 12 44				
*****					
Note: Queue reported is the number of cars per lane.					

Tier 3 PM		Thu Feb 4, 2010 13:44:56		Page 15-1	
		19th Ave CS			
		Tier 3			
Level of Service Computation Report					
2000 HCM Operations Method (Future Volume Alternative)					
Intersection #1120 19th / Ocean					
*****					
Cycle (sec):	100	Critical Vol./Cap.(X):		1.633	
Loss Time (sec):	9	Average Delay (sec/veh):		180.5	
Optimal Cycle:	180	Level Of Service:		F	
*****					
Street Name:	19th	Ocean			
Approach:	North Bound	South Bound	East Bound	West Bound	
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	R
Control:	Permitted	Permitted	Permitted	Permitted	
Rights:	Include	Include	Include	Include	
Min. Green:	64 64 64 64 64 64	26 26 26	26	26 26	26
Y+R:	4.0 4.0 4.0 4.0 4.0 4.0	4.0 4.0 4.0 4.0	4.0 4.0	4.0 4.0	4.0
Lanes:	0 0 2 1 0 0 0 2 1 0 1 0 0 1 0 0				
Volume Module:					
Base Vol:	0 2340 47	0 2579 164	64 293 25	25 271	127
Growth Adj:	1.13 1.12 1.10	1.13 1.18 1.16	1.10 1.08 1.13	1.16 1.15	1.13
Initial Bse:	0 2610 52	0 3039 191	70 317 28	29 311	144
Added Vol:	0 166 0	0 170 0	0 0 0 0	0 0	0
PasserByVol:	0 0 0	0 0 0	0 0 0 0	0 0	0
Initial Fut:	0 2776 52	0 3209 191	70 317 28	29 311	144
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00	1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98	0.98
PHF Volume:	0 2832 53	0 3275 195	72 324 29	30 317	147
Reduced Vol:	0 0 0	0 0 0	0 0 0 0	0 0	0
Reduced Vol:	0 2832 53	0 3275 195	72 324 29	30 317	147
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00	1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00	1.00
FinalVolume:	0 2832 53	0 3275 195	72 324 29	30 317	147
Saturation Flow Module:					
Sat/Lane:	1900 1900	1900 1900	1900 1900	1900 1900	1900
Adjustment:	1.00 0.44 0.89	1.00 0.88 0.88	0.89 0.97 0.97	0.73 0.73	0.73
Lanes:	0.00 2.97 0.03	0.00 2.83 0.17	1.00 0.92 0.08	0.06 0.64	0.30
Final Sat.:	0 2511 47	0 4760 283	1687 1689 150	83 886	409
Capacity Analysis Module:					
Vol/Sat:	0.00 1.13 1.13	0.00 0.69 0.69	0.04 0.19 0.19	0.36 0.36	0.36
Crit Moves:	0.00 1.13 1.13	0.00 0.69 0.69	0.04 0.19 0.19	0.36 0.36	0.36
Green/Cycle:	0.64 0.64 0.64	0.64 0.64 0.64	0.27 0.27 0.27	0.27 0.27	0.27
Volume/Cap:	0.00 1.76 1.76	0.00 1.08 1.08	0.16 0.72 0.72	1.35 1.35	1.35
Delay/Veh:	0.0 354 354.2	0.0 48.9 48.9	29.0 42.4 42.4	211.8 212	211.8
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00	1.00
AdjDel/Veh:	0.0 354 354.2	0.0 48.9 48.9	29.0 42.4 42.4	211.8 212	211.8
LOS by Move:	A F F A D D C D D F F				
HCM2kAvgQ:	0 86 172	0 48 48	2 11 11	33 33	33
Note: Queue reported is the number of cars per lane.					



Tier 3 PM		Thu Feb 4, 2010 13:44:56		Page 16-1	
		19th Ave CS		Tier 3	
Level of Service Computation Report					
2000 HCM Operations Method (Future Volume Alternative)					
Intersection #1130 19th / Eucalyptus					
*****					
Cycle (sec):	100	Critical Vol./Cap.(X):		1.180	
Loss Time (sec):	9	Average Delay (sec/veh):		86.4	
Optimal Cycle:	180	Level of Service:		F	
*****					
Street Name: 19th					
Approach: North Bound South Bound East Bound West Bound					
Movement: L - T - R L - T - R L - T - R L - T - R					
Control: Permitted Permitted Permitted Permitted					
Rights: Include Include Include Include					
Min. Green:	66	66	66	66	25
Y+R:	4.0	4.0	4.0	4.0	4.0
Lanes:	0	2	1	0	0
*****					
Volume Module:					
Base Vol:	0	2277	26	0	2555
Growth Adj:	1.13	1.12	1.10	1.13	1.16
Initial Bse:	0	2540	29	0	3011
Added Vol:	0	121	18	0	137
PasserByVol:	0	0	0	0	0
Initial Fut:	0	2661	47	0	3148
User Adj:	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98
PHF Volume:	0	2715	48	0	3212
Reduc Vol:	0	0	0	0	0
Reduced Vol:	0	2715	48	0	3212
PCE Adj:	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	2715	48	0	3212
*****					
Saturation Flow Module:					
Sat/Lane:	1900	1900	1900	1900	1900
Adjustment:	1.00	0.53	0.89	0.64	0.64
Lanes:	0.00	2.97	0.03	0.00	2.85
Final Sat:	0	3009	53	0	4795
*****					
Capacity Analysis Module:					
Vol/Sat:	0.00	0.90	0.90	0.67	0.16
Crit Moves:	0.66	0.66	0.66	0.66	0.26
Green/Cycle:	0.00	1.37	1.37	0.00	1.01
Volume/Cap:	0.00	175	175.3	0.0	26.3
Delay/Veh:	0.0	175	175.3	0.0	26.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	175	175.3	0.0	26.3
LOS by Move:	A	F	F	A	C
HCM2kAVQ:	0	65	106	0	40
*****					
Note: Queue reported is the number of cars per lane.					
Traffic 8.0.0715 (c) 2008 Dowling Asso. Licensed to AECOM, LOS ANGELES					

Note: Queue reported is the number of cars per lane.

Tier 3 PM		Thu Feb 4, 2010 13:44:56				Page 17-1			
-----									
		19th Ave CS							
		Tier 3							
-----									
Level of Service Computation Report									
2000 HCM Operations Method (Future Volume Alternative)									
*****									
Intersection #1140 19th / Winston									
*****									
Cycle (sec):	100	Critical Vol./Cap.(X):				1.699			
Loss Time (sec):	13	Average Delay (sec/veh):				207.7			
Optimal Cycle:	180	Level of Service:				F			
*****									
Street Name: 19th									
Approach: North Bound South Bound East Bound West Bound									
Movement: L - T - R L - T - R L - T - R L - T - R									
-----									
Control:	Protected	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted
Rights:	Include	Include	Include	Include	Include	Include	Include	Include	Include
Min. Green:	16	44	44	44	44	26	26	26	26
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2	0	2	1	0	3	1	1	1
-----									
Volume Module:									
Base Vol:	524	2162	50	0	2624	168	245	364	347
Growth Adj:	1.03	1.12	1.05	1.09	1.18	1.06	1.05	1.00	1.09
Initial Bse:	539	2411	53	0	3092	178	258	364	377
Added Vol:	120	22	-34	0	81	102	116	374	133
PasserByVol:	0	0	0	0	0	0	0	0	0
Initial Fut:	659	2433	19	0	3173	280	374	738	510
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	672	2483	19	0	3238	286	382	753	520
Reduc Vol:	0	0	0	0	0	0	0	0	0
Reduced Vol:	672	2483	19	0	3238	286	382	753	520
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	672	2483	19	0	3238	286	382	753	520
-----									
Saturation Flow Module:									
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.89	0.89	1.00	1.34	0.83	0.31	0.23	0.83
Lanes:	2.00	2.98	0.02	0.00	3.00	1.00	1.00	2.00	1.00
Final Sat:	3432	5039	39	0	7625	1583	586	878	1583
-----									
Capacity Analysis Module:									
Vol/Sat:	0.20	0.49	0.49	0.00	0.42	0.18	0.65	0.86	0.33
Crit Moves:	0.16	0.44	0.44	0.44	0.44	0.44	0.27	0.27	0.27
Green/Cycle:	1.22	1.12	1.12	0.00	0.97	0.41	2.46	3.24	1.24
Volume/Cap:	158.3	84.4	84.4	0.0	32.5	18.0	700.6	1050	163.6
Delay/Veh:	158.3	84.4	84.4	0.0	32.5	18.0	700.6	1050	163.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	158.3	84.4	84.4	0.0	32.5	18.0	700.6	1050	163.6
LOS by Move:	F	F	F	A	C	B	F	F	F
HCM2kAVGQ:	18	39	39	0	41	5	43	47	31
*****									
Note: Queue reported is the number of cars per lane.									
-----									
Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES									

Note: Queue reported is the number of cars per lane.

19th Ave CS

Tier 3

## Level of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1150 19th / Buckingham

\*\*\*\*\*

Average Delay (sec/veh): 28.3 Worst Case Level of Service: F(604.0)

\*\*\*\*\*

Street Name: 19th Buckingham

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign

Rights: Include Include Include Include

Lanes: 0 0 3 0 0 0 3 0 1 0 0 0 1 0 0 0 0

\*\*\*\*\*

Volume Module:

Base Vol: 0 2736 0 0 2996 68 0 0 278 0 0 0

Growth Adj: 1.04 1.12 1.07 1.10 1.18 1.07 1.07 1.02 1.10 1.07 1.00 1.04

Initial Bse: 0 3051 0 0 3531 73 0 0 305 0 0 0

Added Vol: 0 108 0 0 192 58 0 0 39 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 3159 0 0 3723 131 0 0 344 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 3224 0 0 3799 133 0 0 351 0 0 0

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

FinalVolume: 0 3224 0 0 3799 133 0 0 351 0 0 0

\*\*\*\*\*

Critical Gap Module:

Critical Gp:xxxxx xxxx xxxx xxxx xxxx 6.9 xxxxx xxxx xxxxx

FollowUpTime:xxxxx xxxx xxxx xxxx xxxx 3.3 xxxxx xxxx xxxxx

\*\*\*\*\*

Capacity Module:

Conflict Vol: xxxx xxxx xxxxx xxxx xxxx 1266 xxxxx xxxxx xxxxx

Potential Cap.: xxxx xxxx xxxxx xxxx xxxx 160 xxxxx xxxxx xxxxx

Move Cap.: xxxx xxxx xxxxx xxxx xxxx 160 xxxxx xxxxx xxxxx

Volume/Cap: xxxx xxxx xxxxx xxxx xxxx 2.20 xxxxx xxxxx xxxxx

\*\*\*\*\*

Level of Service Module:

2Way95thQ: xxxx xxxx xxxxx xxxx xxxx 28.5 xxxxx xxxxx xxxxx

Control Del:xxxxx xxxx xxxxx xxxxx xxxx 604.0 xxxxx xxxxx xxxxx

LOS by Move: \* \* \* \* \* LT - LTR - RT LT - LTR - RT

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx xxxx xxxxx xxxx xxxx xxxxx xxxxx xxxxx xxxxx

SharedQueue:xxxxx xxxx xxxxx xxxx xxxx xxxxx xxxxx xxxxx xxxxx

Shrd ConDel:xxxxx xxxx xxxxx xxxx xxxx xxxxx xxxxx xxxxx xxxxx

Shared LOS: \*

ApproachDel: xxxxxx 604.0 xxxxxx

ApproachLOS: \* \* \* \* \* F

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

19th Ave CS

Tier 3

## Level of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1160 19th / Holloway

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 1.027

Loss Time (sec): 0 Average Delay (sec/veh): 120.8

Optimal Cycle: 180 Level of Service: F

\*\*\*\*\*

Street Name: 19th Holloway

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted

Rights: Include Include Include Include

Min. Green: 0 59 59 0 59 59 32 32 32 32

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 2 1 0 0 0 3 0 1 0 1 0 1 0 1 0

\*\*\*\*\*

Volume Module:

Base Vol: 0 2489 143 0 3047 145 88 167 88 45 296 41

Growth Adj: 1.23 1.12 1.15 1.18 1.18 1.27 1.15 1.19 1.18 1.27 1.35 1.23

Initial Bse: 0 2776 165 0 3591 184 101 199 104 57 401 51

Added Vol: 0 47 -35 0 165 66 60 22 54 73 117 1

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 2823 130 0 3756 250 161 221 158 130 518 52

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 2881 132 0 3833 255 165 225 161 133 528 53

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PCE Adj: 0 2881 132 0 3833 255 165 225 161 133 528 53

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 0 2881 132 0 3833 255 165 225 161 133 528 53

\*\*\*\*\*

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 1.00 0.93 0.89 1.00 0.94 0.83 0.49 0.49 0.49 0.61 0.61

Lanes: 0.00 2.86 0.14 0.00 3.00 1.00 0.60 0.82 0.58 0.37 1.48

Final Sat.: 0 5056 233 0 5337 1583 560 765 549 429 1710

\*\*\*\*\*

Capacity Analysis Module:

Vol/Sat: 0.00 0.57 0.57 0.00 0.72 0.16 0.29 0.29 0.29 0.31 0.31

Crit Moves: 0.52 0.52 0.52 0.52 0.52 0.52 0.32 0.32 0.32 0.32

Green/Cycle: 0.00 1.10 1.10 0.00 1.38 0.31 0.92 0.92 0.92 0.97 0.97

Volume/Cap: 0.0 67.2 67.2 0.0 191 11.1 54.3 54.3 54.3 59.2 59.2

Delay/Veh: 0.0 67.2 67.2 0.0 191 11.1 54.3 54.3 54.3 59.2 59.2

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 67.2 67.2 0.0 191 11.1 54.3 54.3 54.3 59.2 59.2

LOS by Move: A E E A F B D D D E E

HCM2KAVGQ: 0 45 42 0 88 3 12 12 12 16 16

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Tier 3 PM	Thu Feb 4, 2010 13:44:56	Page 20-1
19th Ave CS Tier 3		
Level Of Service Computation Report 2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1170 19th / Crespi		
Cycle (sec):	100	Critical Vol./Cap.(X): 0.785
Loss Time (sec):	0	Average Delay (sec/veh): 69.9
Optimal Cycle:	86	Level Of Service: E
Street Name: 19th Crespi		
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Permitted	Permitted
Rights:	Include	Ignore
Min. Green:	59 59 0 0 64 64	21 0 21 0 0 0
Y+R:	4.0 4.0 4.0 4.0 4.0 4.0	4.0 4.0 4.0 4.0 4.0 4.0
Lanes:	0 0 3 0 0 0 0 2 1 0	1 0 1 1 0 0 0 0 0 0
Volume Module:		
Base Vol:	0 2485 0 0 3081 99	147 0 97 0 0 0
Growth Adj:	1.15 1.12 1.00 1.00 1.18 1.18	1.00 1.00 1.00 1.18 1.19 1.15
Initial Bse:	0 2772 0 0 3631 117	147 0 97 0 0 0
Added Vol:	0 99 0 0 219 74	-88 0 17 0 0 0
PasserByVol:	0 0 0 0 0 0	0 0 0 0 0 0
Initial Fut:	0 2871 0 0 3850 191	59 0 114 0 0 0
User Adj:	1.00 1.00 1.00 1.00 1.00 1.00	0.00 1.00 1.00 1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98 0.98 0.98 0.98	0.00 0.98 0.98 0.00 0.98 0.98
PHF Volume:	0 2929 0 0 3929 0	60 0 0 0 0 0
Reduct Vol:	0 0 0 0 0 0	0 0 0 0 0 0
Reduced Vol:	0 2929 0 0 3929 0	60 0 0 0 0 0
PCE Adj:	1.00 1.00 1.00 1.00 1.00 1.00	0.00 1.00 1.00 0.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00 1.00 1.00 1.00	0.00 1.00 1.00 0.00 1.00 1.00
FinalVolume:	0 2929 0 0 3929 0	60 0 0 0 0 0
Saturation Flow Module:		
Sat/Lane:	1900 1900 1900 1900 1900 1900	1900 1900 1900 1900
Adjustment:	1.00 0.89 1.00 1.00 0.89 0.91	0.89 0.95 0.95 1.00 1.00 1.00
Lanes:	0.00 3.00 0.00 0.00 3.00 0.00	3.00 0.00 0.00 0.00 0.00 0.00
Final Sat.:	0 5083 0 0 5083 0	5052 0 0 0 0 0
Capacity Analysis Module:		
Vol/Sat:	0.00 0.58 0.00 0.00 0.77 0.00	0.01 0.00 0.00 0.00 0.00 0.00
Crit Moves:	0.59 0.59 0.59 0.64 0.64 0.64	0.21 0.21 0.21 0.21 0.00 0.00
Green/Cycle:	0.00 0.98 0.00 0.00 1.21 0.00	0.06 0.00 0.00 0.00 0.00 0.00
Volume/Cap:	0.00 23.7 0.0 0.0 105 0.0	0.0 31.7 0.0 0.0 0.0 0.0
Delay/Veh:	0.00 23.7 0.0 0.0 105 0.0	31.7 0.0 0.0 0.0 0.0 0.0
User DelAdj:	1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh:	0.0 23.7 0.0 0.0 105 0.0	31.7 0.0 0.0 0.0 0.0 0.0
LOS by Move:	A C A A A F A A C A A A A A	A A A A A A A A A A A A
HCv24vq2:	0 38 0 0 72 0	1 0 0 0 0 0
Note: Queue reported is the number of cars per lane.		

Tier 3 PM	Thu Feb 4, 2010 13:44:56	Page 21-1
19th Ave CS Tier 3		
Level Of Service Computation Report 2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1181 Chumaseo / Brotherhood		
Cycle (sec):	100	Critical Vol./Cap.(X): 1.738
Loss Time (sec):	12	Average Delay (sec/veh): 456.6
Optimal Cycle:	180	Level Of Service: F
Street Name: Chumaseo Brotherhood		
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Permitted	Permitted
Rights:	Include	Include
Min. Green:	20 20 20 20 20 20	20 20 20 20 20 20
Y+R:	4.0 4.0 4.0 4.0 4.0 4.0	4.0 4.0 4.0 4.0 4.0 4.0
Lanes:	0 0 1 0 0 0 0 1 0 0	1 0 1 0 1 0 1 0 1 0
Volume Module:		
Base Vol:	12 5 32 75 4 12	39 1460 11 33 1613 236
Growth Adj:	1.28 1.00 1.08 1.27 1.38 1.47	1.08 1.16 1.27 1.47 1.57 1.28
Initial Bse:	15 5 34 95 6 18	42 1698 14 49 2532 302
Added Vol:	0 0 0 255 0 -11	-23 249 0 0 386 618
PasserByVol:	0 0 0 0 0 0	0 0 0 0 0 0
Initial Fut:	15 5 34 350 6 7	19 1947 14 49 2918 920
User Adj:	1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98 0.98 0.98 0.98	0.98 0.98 0.98 0.98 0.98 0.98
PHF Volume:	16 5 35 358 6 7	19 1986 14 50 2977 939
Reduct Vol:	0 0 0 0 0 0	0 0 0 0 0 0
Reduced Vol:	16 5 35 358 6 7	19 1986 14 50 2977 939
PCE Adj:	1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
FinalVolume:	16 5 35 358 6 7	19 1986 14 50 2977 939
Saturation Flow Module:		
Sat/Lane:	1900 1900 1900 1900 1900 1900	1900 1900 1900 1900 1900
Adjustment:	0.72 0.72 0.90 0.53 0.53 0.53	0.93 0.93 0.93 0.93 0.90 0.90
Lanes:	0.32 0.10 0.58 0.97 0.01 0.02	1.00 1.99 0.01 1.00 1.52 0.48
Final Sat.:	439 143 984 966 15 18	1769 3509 25 1769 2593 817
Capacity Analysis Module:		
Vol/Sat:	0.04 0.04 0.04 0.37 0.37 0.37	0.01 0.57 0.57 0.03 1.15 1.15
Crit Moves:	0.20 0.20 0.20 0.20 0.20 0.20	0.20 0.48 0.48 0.20 0.48 0.48
Green/Cycle:	0.18 0.18 0.18 1.85 1.85 1.85	0.05 1.18 1.18 0.14 2.39 2.39
Volume/Cap:	40.0 40.0 40.0 448.3 448 448.3	32.6 108 107.8 33.8 649 649.0
Delay/Veh:	1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
User DelAdj:	1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh:	40.0 40.0 40.0 448.3 448 448.3	32.6 108 107.8 33.8 649 649.0
LOS by Move:	D D D F F F F F C F C F C F	F F C F C F C F C F C F
HCv24vq2:	1 1 2 34 34 34	0 54 1 209 209
Note: Queue reported is the number of cars per lane.		



19th Ave CS  
Tier 3Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1190 Sunset / Taraval

Cycle (sec): 60 Critical Vol./Cap.(X): 0.960  
Loss Time (sec): 10 Average Delay (sec/veh): 125.6  
Optimal Cycle: 100 Level Of Service: F

Street Name: Sunset Taraval

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Permitted Include	Permitted Include	Permitted Include	Permitted Include
Rights:	29 29 29	29 29 29	21 21 21	21 21 21
Min. Green:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0
Y+R:	0 0 2 1 0	0 0 2 1 0	1 0 0 1 0	1 0 0 1 0
Lanes:	0 0 2 1 0	0 0 2 1 0	1 0 0 1 0	1 0 0 1 0

Volume Module:

Base Vol:	0 2129 96	0 1790 117	70 238 37	76 243 30
Growth Adj:	1.14 1.20 1.12	1.15 1.26 1.17	1.12 1.04 1.15	1.17 1.08 1.14
Initial Bse:	0 2553 108	0 2261 137	79 249 43	89 263 34
Added Vol:	0 483 0	0 513 0	0 0 0	0 0 0
PasserByVol:	0 0 0	0 0 0	0 0 0	0 0 0
Initial Fut:	0 3036 108	0 2774 137	79 249 43	89 263 34
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	0 3098 110	0 2831 140	80 254 44	91 268 35
Reduced Vol:	0 0 0	0 0 0	0 0 0	0 0 0
Reduced Vol:	0 3098 110	0 2831 140	80 254 44	91 268 35
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
FinalVolume:	0 3098 110	0 2831 140	80 254 44	91 268 35

Saturation Flow Module:

Sat/Lane:	1900 1900 1900	1900 1900 1900	1900 1900 1900	1900 1900 1900
Adjustment:	1.00 0.89 0.89	1.00 0.89 0.89	0.48 0.96 0.96	0.49 0.96 0.96
Lanes:	0.00 2.90 0.10	0.00 2.86 0.14	1.00 0.85 0.15	1.00 0.88 0.12
Final Sat.:	0 4885 173	0 4810 238	916 1554 267	929 1619 211

Capacity Analysis Module:

Vol/Sat:	0.00 0.63 0.63	0.00 0.59 0.59	0.09 0.16 0.16	0.10 0.17 0.17
Crit Moves:	0.00 0.48 0.48	0.00 0.48 0.48	0.35 0.35 0.35	0.35 0.35 0.35
Green/Cycle:	0.00 1.31 1.31	0.00 1.22 1.22	0.25 0.47 0.47	0.28 0.47 0.47
Volume/Cap:	0.00 159.1 159.1	0.00 117.5 117.5	15.7 17.6 17.6	16.2 17.7 17.7
Delay/Veh:	0.0 159.1 159.1	0.0 117.5 117.5	1.00 1.00 1.00	1.00 1.00 1.00
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	0.0 159.1 159.1	0.0 117.5 117.5	15.7 17.6 17.6	16.2 17.7 17.7
LOS by Move:	A F F A F A F B B B B B	A F F A F A F B B B B B	B B B B B B B B B B	B B B B B B B B B B
HCM2kAVGQ:	0 58 58	0 47 47	1 5 5 1	5 5 5 1

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 3Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1200 Sunset / Ocean

Cycle (sec): 60 Critical Vol./Cap.(X): 0.827  
Loss Time (sec): 9 Average Delay (sec/veh): 30.5  
Optimal Cycle: 63 Level Of Service: C

Street Name: Sunset Ocean

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Permitted Include	Permitted Include	Permitted Include	Permitted Include
Rights:	31 31 31	31 31 31	19 19 19	19 19 19
Min. Green:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0
Y+R:	0 0 2 1 0	0 0 1 1 0	0 0 1 0 0	1 0 1 0 1
Lanes:	0 0 2 1 0	0 0 1 1 0	0 0 1 0 0	1 0 1 0 1

Volume Module:

Base Vol:	0 1682 14	1 1588 60	30 61 18	37 47 226
Growth Adj:	1.11 1.24 1.10	1.00 1.00 1.00	1.10 1.00 1.00	1.00 1.00 1.11
Initial Bse:	0 2085 15	1 1589 60	33 61 18	37 47 252
Added Vol:	0 590 0	0 670 0	0 0 0	0 0 0
PasserByVol:	0 0 0	0 0 0	0 0 0	0 0 0
Initial Fut:	0 2675 15	1 2259 60	33 61 18	37 47 252
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	0 2729 16	1 2305 61	34 62 18	38 48 257
Reduced Vol:	0 0 0	0 0 0	0 0 0	0 0 0
Reduced Vol:	0 2729 16	1 2305 61	34 62 18	38 48 257
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
FinalVolume:	0 2729 16	1 2305 61	34 62 18	38 48 257

Saturation Flow Module:

Sat/Lane:	1900 1900 1900	1900 1900 1900	1900 1900 1900	1900 1900 1900
Adjustment:	1.00 0.89 0.89	0.79 0.79 0.79	0.88 0.88 0.88	0.88 0.76 0.98
Lanes:	0.00 2.98 0.02	0.01 2.92 0.07	0.30 0.54 0.16	1.00 1.00 1.00
Final Sat.:	0 5049 29	2 4407 117	493 909 268	1450 1862 1583

Capacity Analysis Module:

Vol/Sat:	0.00 0.54 0.54	0.52 0.52 0.52	0.07 0.07 0.07	0.03 0.03 0.16
Crit Moves:	0.00 0.53 0.53	0.53 0.53 0.53	0.32 0.32 0.32	0.32 0.32 0.32
Green/Cycle:	0.00 1.01 1.01	0.98 0.98 0.98	0.22 0.22 0.22	0.08 0.08 0.51
Volume/Cap:	0.0 34.7 34.7	28.0 28.0 28.0	16.0 16.0 16.0	14.7 14.6 20.4
Delay/Veh:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	0.0 34.7 34.7	28.0 28.0 28.0	16.0 16.0 16.0	14.7 14.6 20.4
LOS by Move:	A C C A C C B B B B	A C C B B B B B	B B B B B B B B	B B B B B B B B
HCM2kAVGQ:	0 21 21	24 24 24	2 2 2	0 1 4

Note: Queue reported is the number of cars per lane.

Tier 3 PM	Thu Feb 4, 2010 13:44:56	Page 24-1
19th Ave CS		
Tier 3		
Level of Service Computation Report		
2000 HCM 4-Way Stop Method (Future Volume Alternative)		
Intersection #1210 Skyline / Sloat / 39th		
Cycle (sec):	100	Critical Vol./Cap.(X): 0.925
Loss time (sec):	0	Average Delay (sec/veh): 29.4
Optimal Cycle:	0	Level of Service: D
*****		
Street Name:	Skyline / 39th	Sloat
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign
Right:	Ignore	Ignore
Lanes:	0 1 0 0 2	0 0 0 1 0
Volume Module:		
Base Vol:	327	0 565
Growth Adj:	1.13	1.23
Initial Bse:	371	0 701
Added Vol:	0	0 3
PasserByVol:	0	0 0
Initial Fut:	371	0 704
User Adj:	1.00	1.00
PHF Adj:	0.98	0.98
PHF Volume:	378	0 0
Reduced Vol:	0	0 0
PCE Adj:	1.00	1.00
MLF Adj:	1.00	1.00
Final Volume:	378	0 0
Saturation Flow Module:		
Adjustment:	1.00	1.00
Lanes:	1.00	0.00
Final Sat:	409	0 912
Capacity Analysis Module:		
Vol/Sat:	0.92	0.00
Crit Moves:	56.1	0.0
Delay/Veh:	1.00	1.00
AdjDel/Veh:	56.1	0.0
LOS by Move:	F	F
ApproachDel:	56.1	12.8
Delay Adj:	1.00	1.00
ApprAdjDel:	56.1	12.8
LOS by Appr:	F	F
AllWayAvg:	5.1	5.1
Note: Queue reported is the number of cars per lane.		

Tier 3 PM	Thu Feb 4, 2010 13:44:56	Page 25-1
19th Ave CS		
Tier 3		
Level of Service Computation Report		
2000 HCM Unsignalized Method (Future Volume Alternative)		
Intersection #1221 Skyline / Lake Merced (WBR)		
Average Delay (sec/veh):	2.5	Worst Case Level of Service: C (17.5)
*****		
Street Name:	Skyline	Lake Merced (WBR)
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled
Right:	Include	Include
Lanes:	0 0 2 0 0	1 0 2 0 0
Volume Module:		
Base Vol:	0	853
Growth Adj:	1.51	1.22
Initial Bse:	0	1041
Added Vol:	0	3
PasserByVol:	0	0
Initial Fut:	0	1044
User Adj:	1.00	1.00
PHF Adj:	0.98	0.98
PHF Volume:	0	1065
Reduced Vol:	0	0
Final Volume:	0	1065
Critical Gap Module:		
Critical Gap:	4.1	4.1
FollowUpTim:	2.2	2.2
Capacity Module:		
Conflict Vol:	1065	1065
Potent Cap.:	650	650
Move Cap.:	650	650
Volume/Cap:	0.17	0.17
Level of Service Module:		
2Way95thQ:	0.6	0.6
Control Del:	11.7	11.7
LOS by Move:	B	B
Movement:	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	650	650
Shared Queue:	650	650
Shrd ConDel:	650	650
Shared LOS:	17.5	17.5
ApproachDel:	17.5	17.5
ApproachLOS:	C	C
Note: Queue reported is the number of cars per lane.		

Tier 3 PM Thu Feb 4, 2010 13:44:56 Page 26-1  
19th Ave CS  
Tier 3

Level Of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)  
Intersection #1222 Skyline / Lake Merced (WBLT)  
Average Delay (sec/veh): 7.4 Worst Case Level Of Service: F(118.6)

Street Name: Skyline Lake Merced (WBLT)  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign  
Rights: Include Include Include Include  
Lanes: 1 0 1 1 0 0 0 2 0 1 0 0 0 0 0 1 0 1 0 0

Volume Module:  
Base Vol: 8 853 118 0 468 21 0 0 0 75 3 0  
Growth Adj: 1.51 1.22 1.12 1.07 1.12 1.46 1.12 1.02 1.07 1.46 1.81 1.51  
Initial Bse: 12 1044 133 0 524 31 0 0 0 110 5 0  
Added Vol: 0 3 0 0 2 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 12 1047 133 0 526 31 0 0 0 110 5 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 12 1069 135 0 537 31 0 0 0 112 6 0  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
FinalVolume: 12 1069 135 0 537 31 0 0 0 112 6 0

Critical Gap Module:  
Critical Gp: 4.1 xxx xxxxxx xxxxxx xxxxxx xxxxxx 6.8 6.5 xxxxxx  
FollowUpTm: 2.2 xxx xxxxxx xxxxxx xxxxxx xxxxxx 3.5 4.0 xxxxxx

Capacity Module:  
Conflict Vol: 568 xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 1429 1729 xxxxxx  
Potent Cap: 1000 xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 126 87 xxxxxx  
Move Cap: 1000 xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 124 86 xxxxxx  
Volume/Cap: 0.01 xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 0.90 0.06 xxxxxx

Level Of Service Module:  
2Way95thQ: 0.0 xxx xxxxxx xxxxxx xxxxxx xxxxxx 5.7 0.2 xxxxxx  
Control Del: 8.6 xxx xxxxxx xxxxxx xxxxxx xxxxxx 122.0 49.5 xxxxxx  
LOS by Move: A \* \* \* \* \* F E \*  
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Shared Cap: xxx xxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
SharedQueue: xxx xxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
Shrd ConDel: xxx xxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
Shared LOS: \* \* \* \* \* \* \* \* \* \* \*  
ApproachDel: xxxxxx xxxxxx xxxxxx 118.6  
ApproachLOS: \* \* \* \* \* F

Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

Tier 3 PM Thu Feb 4, 2010 13:44:56 Page 27-1  
19th Ave CS  
Tier 3

Level Of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)  
Intersection #1230 Sunset / Lake Merced  
Average Delay (sec/veh): OVERFLOW Worst Case Level Of Service: F[xxxxx]

Street Name: Sunset Lake Merced  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign  
Rights: Ignore Ignore Ignore Ignore  
Lanes: 1 0 2 0 0 0 0 2 0 1 1 0 0 0 1 0 0 1 0 0

Volume Module:  
Base Vol: 197 1777 0 0 1550 52 19 0 195 0 0 0  
Growth Adj: 1.48 1.29 1.19 1.26 1.43 1.55 1.19 1.09 1.26 1.55 1.68 1.48  
Initial Bse: 292 2284 0 0 2209 81 23 0 245 0 0 0  
Added Vol: 0 590 0 0 670 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 292 2874 0 0 2879 81 23 0 245 0 0 0  
User Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 0.00  
PHF Adj: 0.98 0.98 0.00 0.98 0.98 0.00 0.98 0.98 0.00 0.98 0.98 0.00  
PHF Volume: 298 2932 0 0 2938 0 23 0 0 0 0 0  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
FinalVolume: 298 2932 0 0 2938 0 23 0 0 0 0 0

Critical Gap Module:  
Critical Gp: 4.1 xxx xxxxxx xxxxxx xxxxxx 2.8 xxx 6.9 7.5 2.5 6.9  
FollowUpTm: 2.2 xxx xxxxxx xxxxxx xxxxxx 3.5 xxx 3.3 3.5 4.0 3.3

Capacity Module:  
Conflict Vol: 2938 xxx xxxxxx xxxxxx xxxxxx 5001 xxx 1469 4998 6467 1466  
Potent Cap: 120 xxx xxxxxx xxxxxx xxxxxx 98 xxx 117 0 68 117  
Move Cap: 120 xxx xxxxxx xxxxxx xxxxxx 0 xxx 117 0 0 117  
Volume/Cap: 2.49 xxx xxxxxx xxxxxx xxxxxx 0.00 xxx xxx 0.00

Level Of Service Module:  
2Way95thQ: 26.5 xxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
Control Del: 753.0 xxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
LOS by Move: F \* \* \* \* \* \* \* \* \* \* \*  
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Shared Cap: xxx xxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
SharedQueue: xxx xxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
Shrd ConDel: xxx xxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
Shared LOS: \* \* \* \* \* \* \* \* \* \* \*  
ApproachDel: xxxxxx xxxxxx +Inf  
ApproachLOS: \* \* \* \* \* F

Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*



Tier 3 PM	Thu Feb 4, 2010 13:44:56	Page 28-1
19th Ave CS		
Tier 3		
Level of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1240 Lake Merced / Winston		
Cycle (sec):	90	Critical Vol./Cap.(X): 1.372
Loss time (sec):	9	Average Delay (sec/veh): 188.9
Optimal Cycle:	180	Level Of Service: F
Street Name: Lake Merced		
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Permitted	Protected
Rights:	WideByPass	Include
Min. Green:	34 34 34	17 55 55
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 2 1 0	2 0 2 0 0
Volume Module:		
Base Vol:	0 1747 404	204 1229
Growth Adj:	1.55 1.12 1.27	1.30 1.18 1.59
Initial Bse:	0 1948 514	266 1448
Added Vol:	0 315 251	210 460
PasserByVol:	0 0 0	0 0 0
Initial Fut:	0 2263 765	476 1908
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	0 2310 780	485 1947
Reduc Vol:	0 0 0	0 0 0
Reduced Vol:	0 2310 780	485 1947
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00
FinalVolume:	0 2310 780	485 1947
Saturation Flow Module:		
Sat/Lane:	1900 1900	1900 1900
Adjustment:	1.00 0.86 0.86	0.90 0.93 1.00
Lanes:	0.00 2.24 0.76	2.00 2.00 0.00
Final Sat.:	0 3655 1235	3432 3538
Capacity Analysis Module:		
Vol/Sat:	0.00 0.63 0.63	0.14 0.55 0.00
Crit Moves:	0.00 0.63 0.63	0.00 0.00 0.00
Green/Cycle:	0.38 0.38 0.38	0.19 0.62 0.62
Volume/Cap:	0.00 1.65 1.65	0.73 0.89 0.00
Delay/Veh:	0.00 320 319.5	40.8 13.9 0.0
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	0.00 320 319.5	40.8 13.9 0.0
LOS by Move:	A F F	D B A
HCM2kAvgQ:	0 86 86	6 18 0
Note: Queue reported is the number of cars per lane.		

Tier 3 PM	Thu Feb 4, 2010 13:44:56	Page 29-1
19th Ave CS		
Tier 3		
Level of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1250 Lake Merced / Font		
Cycle (sec):	90	Critical Vol./Cap.(X): 1.643
Loss time (sec):	7	Average Delay (sec/veh): 209.4
Optimal Cycle:	180	Level Of Service: F
Street Name: Lake Merced		
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Permitted	Protected
Rights:	Ignore	Include
Min. Green:	43 43 43	15 61 61
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 2 0 1	1 0 2 0 0
Volume Module:		
Base Vol:	0 1683 17	176 1644
Growth Adj:	1.08 1.12 1.10	1.13 1.18 1.11
Initial Bse:	0 1877 19	198 1937
Added Vol:	0 292 39	531 413
PasserByVol:	0 0 0	0 0 0
Initial Fut:	0 2169 58	729 2350
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	0 2213 0	744 2398
Reduc Vol:	0 0 0	0 0 0
Reduced Vol:	0 2213 0	744 2398
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00
FinalVolume:	0 2213 0	744 2398
Saturation Flow Module:		
Sat/Lane:	1900 1900	1900 1900
Adjustment:	1.00 0.93 1.00	0.93 0.93 1.00
Lanes:	0.00 2.00 1.00	1.00 2.00 0.00
Final Sat.:	0 3538 1900	1769 3538
Capacity Analysis Module:		
Vol/Sat:	0.00 0.63 0.00	0.42 0.68 0.00
Crit Moves:	0.00 0.63 0.00	0.00 0.00 0.00
Green/Cycle:	0.48 0.48 0.48	0.17 0.68 0.68
Volume/Cap:	0.00 1.31 0.00	2.52 1.00 0.00
Delay/Veh:	0.00 162 0.0	733.2 23.4 0.0
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	0.00 162 0.0	733.2 23.4 0.0
LOS by Move:	A F A	F C A
HCM2kAvgQ:	0 68 0	76 44 0
Note: Queue reported is the number of cars per lane.		



Tier 3 Conditions  
Weekday Midday Peak Hour



Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1030 Junipero Serra / Sloat / West Portal / St. Francis  
Cycle (sec): 105 Critical Vol./Cap.(X): 1.183  
Loss Time (sec): 16 Average Delay (sec/veh): 181.9  
Optimal Cycle: 180 Level Of Service: F

Street Name: Junipero Serra / West Portal Sloat / St. Francis  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Protected Permitted Split Phase Split Phase  
Rights: Include Include Ignore Include  
Min. Green: 16 53 32 32 15 15 15 20 20 20  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 3 0 1 1 0 0 0 2 1 0 3 0 1 0 1 0 1 0

Volume Module:  
Base Vol: 1575 1246 23 0 787 272 895 346 371 14 293 26  
Growth Adj: 1.13 1.12 1.10 1.13 1.16 1.08 1.13 1.16 1.15 1.13  
Initial Bse: 1781 1390 25 0 927 316 984 375 420 16 336 29  
Added Vol: 92 212 0 0 261 0 2 0 88 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 1873 1602 25 0 1188 316 986 375 508 16 336 29  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 1912 1634 26 0 1213 323 1006 382 0 17 343 30  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 1912 1634 26 0 1213 323 1006 382 0 17 343 30  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 1912 1634 26 0 1213 323 1006 382 0 17 343 30

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.89 0.92 0.92 1.00 0.87 0.87 0.89 0.97 1.00 0.92 0.92 0.92  
Lanes: 3.00 1.97 0.03 0.00 2.37 0.63 3.00 1.00 1.00 0.09 1.76 0.15  
Final Sat.: 5096 3441 54 0 3929 1046 5096 1843 1900 149 3071 269

Capacity Analysis Module:  
Vol/Sat: 0.38 0.47 0.47 0.00 0.31 0.31 0.20 0.21 0.00 0.11 0.11 0.11  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.21 0.51 0.51 0.00 0.30 0.30 0.14 0.14 0.00 0.19 0.19 0.19  
Volume/Cap: 1.79 0.92 0.92 0.00 1.01 1.01 1.38 1.45 0.00 0.59 0.59 0.59  
Delay/Veh: 401.1 27.0 27.0 0.0 62.1 62.1 225.1 268 0.0 42.5 42.5 42.5  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 401.1 27.0 27.0 0.0 62.1 62.1 225.1 268 0.0 42.5 42.5 42.5  
LOS by Move: F C C A E E F F A D D D  
HCM2kAvgQ: 56 25 25 0 25 25 25 29 0 7 7 7

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1070 Junipero Serra / 19th  
Cycle (sec): 100 Critical Vol./Cap.(X): 1.855  
Loss Time (sec): 17 Average Delay (sec/veh): 273.9  
Optimal Cycle: 180 Level Of Service: F

Street Name: Junipero Serra 19th  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Split Phase Split Phase Split Phase Split Phase  
Rights: Ignore Ignore Ovl Include  
Min. Green: 54 54 54 20 20 20 9 9 9 9  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 2 1 0 1 0 0 1 2 1 0 0 0 1 0 1 0

Volume Module:  
Base Vol: 2245 1828 70 0 1917 12 0 85 4216 28 48 36  
Growth Adj: 1.09 1.12 1.06 1.09 1.18 1.12 1.06 1.01 1.09 1.12 1.06 1.09  
Initial Bse: 2442 2039 74 0 2259 13 0 86 4610 31 51 39  
Added Vol: 135 137 1 0 31 0 0 41 282 0 0 30  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 2577 2176 75 0 2290 13 0 127 4892 31 51 69  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 2629 2220 0 0 2337 0 0 129 4992 32 52 71  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 2629 2220 0 0 2337 0 0 129 4992 32 52 71  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 2629 2220 0 0 2337 0 0 129 4992 32 52 71

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.88 0.91 0.95 0.91 0.89 0.91 1.00 0.98 0.73 0.56 0.90 0.90  
Lanes: 2.20 1.80 0.00 0.00 4.00 0.00 0.00 1.00 3.00 1.00 0.42 0.58  
Final Sat.: 3675 3103 0 0 6778 0 0 1862 4178 1065 721 980

Capacity Analysis Module:  
Vol/Sat: 0.72 0.72 0.00 0.00 0.34 0.00 0.00 0.07 1.19 0.03 0.07 0.07  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.54 0.54 0.54 0.20 0.20 0.20 0.09 0.09 0.68 0.09 0.09 0.09  
Volume/Cap: 1.32 1.32 0.00 0.00 1.72 0.00 0.00 0.77 1.76 0.33 0.80 0.80  
Delay/Veh: 164.3 164 0.0 0.0 369 0.0 0.0 72.9 347.4 51.8 78.7 78.7  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 164.3 164 0.0 0.0 369 0.0 0.0 72.9 347.4 51.8 78.7 78.7  
LOS by Move: F F A A F A E F D E  
HCM2kAvgQ: 78 78 0 0 52 0 0 6 157 1 6 6

Note: Queue reported is the number of cars per lane.

Tier 3 WE	Mon Jan 4, 2010 09:23:41	Page 14-1
19th Ave CS		
Tier 3		
Level Of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1110 19th / Sloat		
Cycle (sec):	100	Critical Vol./Cap.(X): 1.579
Loss Time (sec):	9	Average Delay (sec/veh): 118.7
Optimal Cycle:	180	Level Of Service: F
Street Name: 19th Sloat		
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Permitted	Protected
Include	Include	Include
Min. Green:	0 43 43	11 58 58
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 2 1 0	1 0 2 1 0
Volume Module:		
Base Vol:	0 2032	83 275 2702
Growth Adj:	1.13 1.12	1.10 1.08 1.13
Initial Bse:	0 2266	91 311 3184
Added Vol:	0 242	2 27 234
PasserByVol:	0 0	0 0 0
Initial Fut:	0 2508	93 338 3418
User Adj:	1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98	0.98 0.98 0.98
PHF Volume:	0 2559	95 345 3488
Reduct Vol:	0 0	0 0 0
Reduced Vol:	0 2559	95 345 3488
PCE Adj:	1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00	1.00 1.00 1.00
FinalVolume:	0 2559	95 345 3488
Saturation Flow Module:		
Sat/Lane:	1900 1900	1900 1900 1900
Adjustment:	1.00 0.89	0.93 0.88 0.88
Lanes:	0.00 2.89	0.11 1.90 2.70
Final Sat:	0 4877	181 1769 4514
Capacity Analysis Module:		
Vol/Sat:	0.00 0.52	0.52 0.19 0.77
Crit Moves:	0.00 0.43	0.43 0.18 0.61
Green/Cycle:	0.00 1.22	1.22 1.06 1.26
Volume/Cap:	0.00 1.28	1.28 1.08 1.30
Delay/Veh:	0.00 128.2	108.1 130 129.9
User DelAdj:	1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	0.00 128.2	108.1 130 129.9
LOS by Move:	A F F	F F F
HCM2kAvgQ:	0 49	49 18 80
Note: Queue reported is the number of cars per lane.		

Tier 3 WE	Mon Jan 4, 2010 09:23:41	Page 17-1
19th Ave CS		
Tier 3		
Level Of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1140 19th / Winston		
Cycle (sec):	100	Critical Vol./Cap.(X): 1.714
Loss Time (sec):	13	Average Delay (sec/veh): 182.6
Optimal Cycle:	180	Level Of Service: F
Street Name: 19th Winston		
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Protected	Permitted
Include	Include	Include
Min. Green:	16 44 44	44 44 44
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	2 0 2 1 0	0 0 3 0 1
Volume Module:		
Base Vol:	424 1667	58 0 2144
Growth Adj:	1.03 1.12	1.05 1.06 1.05
Initial Bse:	436 1859	61 0 2527
Added Vol:	164 71	0 0 130
PasserByVol:	0 0	0 0 0
Initial Fut:	600 1930	61 0 2657
User Adj:	1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98	0.98 0.98 0.98
PHF Volume:	612 1970	62 0 2711
Reduct Vol:	0 0	0 0 0
Reduced Vol:	612 1970	62 0 2711
PCE Adj:	1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00	1.00 1.00 1.00
FinalVolume:	612 1970	62 0 2711
Saturation Flow Module:		
Sat/Lane:	1900 1900	1900 1900 1900
Adjustment:	0.90 0.89	0.89 1.00 1.34
Lanes:	2.00 2.91	0.09 0.00 3.00
Final Sat:	3432 4903	155 0 7625
Capacity Analysis Module:		
Vol/Sat:	0.18 0.40	0.40 0.00 0.36
Crit Moves:	0.16 0.44	0.44 0.44 0.44
Green/Cycle:	1.11 0.91	0.91 0.00 0.81
Volume/Cap:	115.9 29.4	29.4 0.0 22.9
Delay/Veh:	115.9 29.4	29.4 0.0 22.9
User DelAdj:	1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	115.9 29.4	29.4 0.0 22.9
LOS by Move:	F C C	C A C
HCM2kAvgQ:	14 21	21 0 25
Note: Queue reported is the number of cars per lane.		





Tier 3

# Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

107	Critical Vol./Cap. (X):	2.443
ec): 15	Average Delay (sec/veh):	132.2
e: 180	Level Of Service:	F

\*\*\*\*\*  
 Lake Merced \*\*\*\*\*  
 Brotherhood \*\*\*\*\*

[illegible]

	Control:	Permitted	Protected	Split Phase	Split Phase
	Rights:	WideBypass	Include	Include	Include
Min. Green:	0	0	0	0	0
Y+R:	5.0	5.0	5.0	5.0	5.0
Lanes:	0	2	1	0	0

Volume Module:										
Base Vol:	0	535	223	1076	498	0	0	0	0	0
Growth Adj:	1.71	1.12	1.14	1.17	1.18	1.74	1.14	1.16	1.17	1.74
Initial Bse:	0	597	254	1260	587	0	0	0	0	376
Added Vol:	0	322	0	269	236	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	919	254	1529	823	0	0	0	0	0
User Adj:	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	0	937	259	1560	0	0	0	0	0	384
Reduc Vol:	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	937	259	1560	0	0	0	0	0	0
PCPE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	937	259	1560	0	0	0	0	0	384

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Adjustment:	1.00	0.93	0.83	0.90	1.00	1.00	1.00	1.00	1.00	0.93	1.00	0.83
Lanes:	0.00	2.00	1.00	2.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Total Sat.	0	3538	1583	3432	1900	0	0	0	0	1769	0	1583

Capacity Analysis Module:										
	0.00	0.26	0.16	0.45	0.00	0.00	0.00	0.22	0.00	1.38
Vol/Sat:	0.00	0.26	0.16	0.45	0.00	0.00	0.00	0.22	0.00	1.38
Crit Moves:	0.00	0.26	0.16	0.45	0.00	0.00	0.00	0.22	0.00	1.38
Green/Cycle:	0.21	0.21	0.21	0.43	0.68	0.00	0.00	0.00	0.22	0.22
Volume/Cap:	0.00	1.29	0.80	1.06	0.00	0.00	0.00	0.00	0.97	0.00
Delay/Yen:	0.0	183	58.5	66.5	0.0	0.0	0.0	0.0	79.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	183	58.5	66.5	0.0	0.0	0.0	0.0	79.0	0.0
LOS by Move:	A	F	E	E	A	A	A	A	E	A
HCM2cAvgQ:	0	32	10	37	0	0	0	0	17	0

Note: Queue reported is the number of cars per lane.

Tier 4A Conditions  
Weekday AM Peak Hour

Intersection	Impact Analysis Report Level Of Service				Future				Change in
	Del/	V/	Del/	V/	Del/	V/	Del/	V/	
	LOS	Veh	LOS	Veh	LOS	Veh	LOS	Veh	
#1010 Claremont / Taraval / Dewey /	A	6.8	0.650	A	7.0	0.665	+ 0.015	V/C	
#1020 Santa Clara / Portola / Vicent	C	29.7	0.837	D	40.2	0.960	+10.494	D/V	
#1030 Junipero Serra / Sloat / West	F	89.5	1.076	F	95.9	1.094	+ 6.319	D/V	
#1040 Junipero Serra / Ocean / Euca	D	40.4	0.758	D	46.9	0.802	+ 6.482	D/V	
#1050 Junipero Serra / Winston / Mer	C	34.6	0.632	D	38.3	0.772	+ 3.680	D/V	
#1060 Junipero Serra / Holloway	C	32.7	0.675	D	36.9	0.716	+ 4.265	D/V	
#1070 Junipero Serra / 19th	D	54.2	0.942	E	68.8	0.968	+14.655	D/V	
#1075 Junipero Serra / Chumase	A	5.8	0.757	B	19.4	0.997	+13.632	D/V	
#1080 Junipero Serra / I-280 NB On-R	D	40.2	0.788	D	40.5	0.801	+ 0.279	D/V	
#1090 Junipero Serra / I-280 SB On-R	C	20.4	0.568	C	20.4	0.620	-0.007	D/V	
#1100 19th / Taraval	C	25.5	0.815	C	28.9	0.829	+ 3.420	D/V	
#1110 19th / Sloat	F	107.3	1.464	F	119.3	1.508	+11.977	D/V	
#1120 19th / Ocean	D	41.4	1.084	D	46.1	1.093	+ 4.780	D/V	
#1130 19th / Euca	C	21.0	0.831	C	23.1	0.865	+ 2.060	D/V	
#1140 19th / Winston	D	50.0	0.977	F	84.1	1.322	+34.127	D/V	
#1150 19th / Buckingham	F	57.6	0.679	F	77.7	0.826	+20.071	D/V	
#1160 19th / Holloway	E	61.9	0.850	E	59.7	0.930	-2.282	D/V	
#1170 19th / Crespi	E	57.5	0.762	E	75.7	0.752	+18.286	D/V	
#1181 Chumase	B	13.8	0.640	B	19.7	0.703	+ 5.962	D/V	
#1182 Thomas More / brotherhood	B	15.7	0.611	C	23.0	0.747	+ 7.334	D/V	
#1190 Sunset / Taraval	C	21.0	0.717	D	43.0	0.799	+21.964	D/V	
#1200 Sunset / Ocean	B	12.0	0.605	B	13.7	0.664	+ 1.687	D/V	
#1210 Skyline / Sloat / 39th	C	17.0	0.684	C	17.5	0.692	+ 0.009	V/C	
#1221 Skyline / Lake Merced (WBR)	C	15.1	0.209	C	15.1	0.209	+ 0.010	D/V	

Intersection	Base				Future				Change in
	Del/	V/	Del/	V/	Del/	V/	Del/	V/	
	LOS	Veh	LOS	Veh	LOS	Veh	LOS	Veh	
#1222 Skyline / Lake Merced (WBLT)	F	52.5	0.379	F	52.8	0.381	+ 0.284	D/V	
#1230 Sunset / Lake Merced	F	154.0	0.594	F	425.0	1.103	+270.952	D/	
#1240 Lake Merced / Winston	C	28.8	0.691	F	96.8	0.805	+68.066	D/V	
#1250 Lake Merced / Font	E	61.6	0.746	F	160.6	1.400	+98.995	D/V	
#1261 Lake Merced / Vidal	D	45.6	0.728	D	45.2	0.925	-0.430	D/V	
#1262 Lake Merced / Acevedo	D	47.6	0.738	D	43.3	0.962	-4.329	D/V	
#1263 Lake Merced / Higuera	E	69.0	0.670	D	37.9	0.994	-31.032	D/	
#1264 Lake Merced / Gonzalez	F	112.1	0.742	D	47.1	1.036	-64.994	D/	
#1270 Lake Merced / Brotherhood	D	54.5	1.511	F	122.0	1.784	+67.580	D/V	



Level Of Service Computation Report														
FHWA Roundabout Method (Future Volume Alternative)														
Intersection #1010 Claremont / Tataval / Dewey / Kensington														
Average Delay (sec/veh): 7.0 Level Of Service: A														
Street Name: Claremont														
Approach: North Bound South Bound East Bound West Bound														
Movement: L - T - R L - T - R L - T - R L - T - R														
Control: Yield Sign Yield Sign Yield Sign Yield Sign														
Lanes: 1 1 1 1														
Volume Module:														
Base Vol:	3	7	221	10	60	37	1	231	27	313	337	84		
Growth Adj:	1.03	1.02	1.02	1.02	1.02	1.03	1.02	1.01	1.02	1.03	1.04	1.03		
Initial Bse:	3	7	224	10	61	38	1	233	27	323	351	87		
Added Vol:	1	0	5	0	0	0	0	0	0	17	0	0		
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0		
Initial Fut:	4	7	229	10	61	38	1	233	27	340	351	87		
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98		
PHF Volume:	4	7	234	10	63	39	1	238	28	347	358	88		
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0		
Reduced Vol:	4	7	234	10	63	39	1	238	28	347	358	88		
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
FinalVolume:	4	7	234	10	63	39	1	238	28	347	358	88		
PCE Module:														
AutoPCE:	4	7	234	10	63	39	1	238	28	347	358	88		
TruckPCE:	0	0	0	0	0	0	0	0	0	0	0	0		
ComboPCE:	0	0	0	0	0	0	0	0	0	0	0	0		
BicyclePCE:	0	0	0	0	0	0	0	0	0	0	0	0		
AdjVolume:	4	7	234	10	63	39	1	238	28	347	358	88		
Delay Module: >> Time Period: 0.25 hours <<														
CircVolume:	250				709			420				13		
MaxVolume:	1065				817			973				1193		
PedVolume:	0				0			0				0		
AdjMaxVol:	1065				817			973				1193		
ApproachVol:	246				112			267				0.66		
ApproachV/C:	0.23				0.14			0.27				5.4		
ApproachDel:	4.4				5.1			5.1				8.8		
ApproachLOS:	A				A			A				A		
Queue:	0.9				0.5			1.1				5.4		

Level Of Service Computation Report														
2000 HCM Operations Method (Future Volume Alternative)														
Intersection #1020 Santa Clara / Portola / Vicente														
Cycle (sec): 80 Critical Vol./Cap.(X): 0.960														
Loss Time (sec): 11 Average Delay (sec/veh): 40.2														
Optimal Cycle: 124 Level Of Service: D														
Street Name: Santa Clara / Vicente Portola														
Approach: North Bound South Bound East Bound West Bound														
Movement: L - T - R L - T - R L - T - R L - T - R														
Control: Permitted Permitted Permitted Permitted														
Rights: Include Include Include Include														
Min. Green:	23	23	23	23	23	23	9	36	36	9	36	36		
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Lanes:	0	0	1	0	0	0	1	0	0	1	0	1		
Volume Module:														
Base Vol:	18	264	86	82	202	30	24	1057	17	120	859	81		
Growth Adj:	1.05	1.04	1.09	1.12	1.10	1.08	1.09	1.13	1.12	1.08	1.05	1.05		
Initial Bse:	19	276	94	92	223	32	26	1197	19	129	903	85		
Added Vol:	0	0	0	26	0	4	0	131	0	0	79	0		
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0		
Initial Fut:	19	276	94	118	223	36	26	1328	19	129	982	85		
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98		
PHF Volume:	19	281	96	120	227	37	27	1355	19	132	1002	87		
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0		
Reduced Vol:	19	281	96	120	227	37	27	1355	19	132	1002	87		
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
FinalVolume:	19	281	96	120	227	37	27	1355	19	132	1002	87		
Saturation Flow Module:														
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Adjustment:	0.92	0.92	0.92	0.56	0.56	0.56	0.93	0.93	0.93	0.93	0.92	0.92		
Lanes:	0.05	0.71	0.24	0.31	0.59	0.10	1.00	1.97	0.03	1.00	1.84	0.16		
Final Sat:	85	1248	424	330	625	102	1769	3481	50	1769	3217	278		
Capacity Analysis Module:														
Vol/Sat:	0.23	0.23	0.23	0.36	0.36	0.36	0.02	0.39	0.39	0.07	0.31	0.31		
Crit Moves:														
Green/Cycle:	0.30	0.30	0.30	0.30	0.30	0.30	0.11	0.45	0.45	0.11	0.45	0.45		
Volume/Cap:	0.75	0.75	0.75	1.21	1.21	1.21	0.13	0.87	0.87	0.66	0.69	0.69		
Delay/Veh:	34.8	34.8	34.8	149.4	149.4	149.4	33.4	26.4	26.4	50.1	20.1	20.1		
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
AdjDel/Veh:	34.8	34.8	34.8	149.4	149.4	149.4	33.4	26.4	26.4	50.1	20.1	20.1		
LOS by Move:	C	C	C	F	F	F	C	C	C	C	D	C		
HCM2RAVGQ:	11	11	11	21	21	21	1	19	19	4	12	12		
Note: Queue reported is the number of cars per lane.														

Tier 4a AM	Thu Feb 4, 2010 15:00:52	Page 5-1
19th Ave CS Tier 4a		
Level Of Service Computation Report 2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1030 Junipero Serra / Sloat / West Portal / St. Francis		
Cycle (sec):	105	Critical Vol./Cap.(X): 1.094
Loss Time (sec):	16	Average Delay (sec/veh): 95.9
Optimal Cycle:	180	Level Of Service: F
Street Name: Junipero Serra / West Portal Sloat / St. Francis		
Approach:	North Bound South Bound West Bound	
Movement:	L - T - R L - T - R L - T - R L - T - R	
Control:	Protected Permitted	Split Phase
Rights:	Include Include	Include
Min. Green:	16 48 48 27 27 27 20 20 20 20 20 20	20 20 20
Y+R:	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	3 0 1 1 0 0 0 2 1 0 3 0 1 0 1 0 1 0	0 1 0 1 0
Volume Module:		
Base Vol:	972 1137 20 0 1092 176 646 416 322 23 347 8	
Growth Adj:	1.16 1.14 1.16 1.14 1.09 1.14 1.16 1.19 1.14 1.14 1.19 1.16	
Initial Bse:	1129 1292 23 0 1192 200 750 494 367 26 412 9	
Added Vol:	22 110 0 0 53 0 2 0 7 0 0 0	
PasserByVol:	0 0 0 0 0 0 0 0 0 0 0 0	
Initial Fut:	1151 1402 23 0 1245 200 752 494 374 26 412 9	
User Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
PHF Adj:	0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98	
PHF Volume:	1174 1431 24 0 1271 205 768 504 0 27 420 9	
Reduct Vol:	0 0 0 0 0 0 0 0 0 0 0 0	
Reduced Vol:	1174 1431 24 0 1271 205 768 504 0 27 420 9	
PCE Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
MLF Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
FinalVolume:	1174 1431 24 0 1271 205 768 504 0 27 420 9	
Saturation Flow Module:		
Sat/Lane:	1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900	
Adjustment:	0.99 0.92 0.92 1.00 0.88 0.88 0.89 0.97 1.00 0.93 0.93 0.93	
Lanes:	3.00 1.97 0.03 3.00 2.58 0.42 3.00 1.84 0.04 0.12 1.84 0.04	
Final Sat.:	5096 3438 57 0 4329 697 5096 1843 1900 206 3237 73	
Capacity Analysis Module:		
Vol/Sat:	0.23 0.42 0.42 0.00 0.29 0.29 0.15 0.27 0.00 0.13 0.13 0.13	
Crit Moves:	****	****
Green/Cycle:	0.18 0.44 0.44 0.00 0.26 0.26 0.22 0.22 0.00 0.19 0.19 0.19	
Volume/Cap:	1.26 0.95 0.95 0.00 1.14 1.14 0.69 1.26 0.00 0.68 0.68 0.68	
Delay/Veh:	168.3 37.1 37.1 0.0 113 112.5 41.5 177 0.0 45.1 45.1 45.1	
User DelAdj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
AdjDel/Veh:	168.3 37.1 37.1 0.0 113 112.5 41.5 177 0.0 45.1 45.1 45.1	
LOS by Move:	F D D A F F D D A D D D	
HCW2kAvgQ:	23 23 23 0 29 29 9 31 0 8 8 8	
Note: Queue reported is the number of cars per lane.		

Tier 4a AM	Thu Feb 4, 2010 15:00:53	Page 6-1
19th Ave CS Tier 4a		
Level Of Service Computation Report 2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1040 Junipero Serra / Ocean / Eucalyptus		
Cycle (sec):	100	Critical Vol./Cap.(X): 0.802
Loss Time (sec):	14	Average Delay (sec/veh): 46.9
Optimal Cycle:	100	Level Of Service: D
Street Name: Junipero Serra Ocean / Eucalyptus		
Approach:	North Bound South Bound East Bound West Bound	
Movement:	L - T - R L - T - R L - T - R L - T - R	
Control:	Protected Protected	Permitted Permitted
Rights:	Include Include	Ov1 Ov1
Min. Green:	11 43 43 16 48 48 27 27 27 27 27 27	27 27 27
Y+R:	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	1 0 2 1 0 2 0 2 1 0 0 1 0 1 0 1 0 1	0 1 0 1
Volume Module:		
Base Vol:	189 1678 46 326 1061 90 85 384 45 54 368 324	
Growth Adj:	1.16 1.14 1.16 1.14 1.09 1.14 1.16 1.19 1.14 1.14 1.19 1.16	
Initial Bse:	220 1907 53 371 1159 103 99 456 51 62 437 376	
Added Vol:	0 107 4 14 42 4 2 16 0 1 33 23	
PasserByVol:	0 0 0 0 0 0 0 0 0 0 0 0	
Initial Fut:	220 2014 57 385 1201 107 101 472 51 63 470 399	
User Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
PHF Adj:	0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98	
PHF Volume:	224 2055 59 393 1225 109 103 481 52 64 479 407	
Reduct Vol:	0 0 0 0 0 0 0 0 0 0 0 0	
Reduced Vol:	224 2055 59 393 1225 109 103 481 52 64 479 407	
PCE Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
MLF Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
FinalVolume:	224 2055 59 393 1225 109 103 481 52 64 479 407	
Saturation Flow Module:		
Sat/Lane:	1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900	
Adjustment:	0.92 0.88 0.88 0.91 0.89 0.89 0.60 0.60 0.83 0.96 0.96 0.83	
Lanes:	1.00 2.92 0.08 2.00 2.76 0.24 0.35 1.65 1.00 0.12 0.88 1.00	
Final Sat.:	1751 4873 139 3466 4659 413 403 1889 1583 214 1605 1583	
Capacity Analysis Module:		
Vol/Sat:	0.13 0.42 0.42 0.11 0.26 0.26 0.25 0.25 0.03 0.30 0.30 0.26	
Crit Moves:	****	****
Green/Cycle:	0.11 0.43 0.43 0.16 0.48 0.48 0.27 0.27 0.38 0.27 0.27 0.43	
Volume/Cap:	1.16 0.98 0.98 0.71 0.55 0.55 0.94 0.94 0.09 1.11 1.11 0.60	
Delay/Veh:	160.1 39.5 39.5 47.3 15.5 15.5 60.4 60.4 20.2 109.2 109.2 25.7	
User DelAdj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
AdjDel/Veh:	160.1 39.5 39.5 47.3 15.5 15.5 60.4 60.4 20.2 109.2 109.2 25.7	
LOS by Move:	F D D D B B E C F C	
HCW2kAvgQ:	10 23 23 5 8 8 14 14 1 27 27 10	
Note: Queue reported is the number of cars per lane.		

Tier 4a AM		Thu Feb 4, 2010 15:00:53										Page 7-1	
		19th Ave CS											
		Tier 4a											
Level Of Service Computation Report													
2000 HCM Operations Method (Future Volume Alternative)													
Intersection #1050 Junipero Serra / Winston / Mercedes													
*****													
Cycle (sec):	100	Critical Vol./Cap.(X):										0.772	
Loss Time (sec):	14	Average Delay (sec/veh):										38.3	
Optimal Cycle:	100	Level Of Service:										D	
*****													
Street Name:		Junipero Serra		Winston / Mercedes									
Approach:		North Bound		South Bound		East Bound		West Bound					
Movement:		L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	
Control:		Protected		Protected		Protected		Protected		Protected		Protected	
Rights:		WideBypass		Include		Include		Include		Include		Include	
Min. Green:		19	40	40	19	40	40	27	27	27	27	27	27
Y+R:		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:		1	0	2	1	0	2	1	0	1	0	1	0
-----													
Volume Module:													
Base Vol:		186	1681	29	103	1024	72	80	63	73	64	147	62
Growth Adj:		1.07	1.14	1.16	1.14	1.09	1.05	1.16	1.19	1.14	1.05	1.00	1.07
Initial Bse:		199	1911	34	117	1118	75	93	75	83	67	147	66
Added Vol:		56	38	4	1	-24	65	73	48	29	-6	82	0
PasserByVol:		0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:		255	1949	38	118	1094	140	166	123	112	61	229	66
User Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:		0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:		260	1988	38	121	1117	143	169	125	115	62	234	68
Reduc Vol:		0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:		260	1988	38	121	1117	143	169	125	115	62	234	68
PCE Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:		260	1988	38	121	1117	143	169	125	115	62	234	68
-----													
Saturation Flow Module:													
Sat/Lane:		1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:		0.93	0.89	0.89	0.93	0.88	0.88	0.46	0.98	0.83	0.64	0.98	0.83
Lanes:		1.00	2.94	0.06	1.00	2.66	0.34	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat:		1769	4972	96	1769	4429	568	868	1862	1583	1216	1862	1583
-----													
Capacity Analysis Module:													
Vol/Sat:		0.15	0.40	0.40	0.07	0.25	0.25	0.20	0.07	0.07	0.05	0.13	0.04
Crit Moves:		****											
Green/Cycle:		0.19	0.40	0.40	0.19	0.40	0.40	0.27	0.27	0.27	0.27	0.27	0.27
Volume/Cap:		0.77	1.00	1.00	0.36	0.63	0.63	0.72	0.25	0.27	0.19	0.46	0.16
Delay/Veh:		54.3	46.8	46.8	38.2	23.0	23.0	50.7	29.8	30.3	29.4	33.5	28.6
User DelAdj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:		54.3	46.8	46.8	38.2	23.0	23.0	50.7	29.8	30.3	29.4	33.5	28.6
LOS by Move:		D	D	D	D	C	C	D	C	C	C	C	C
HCM2kAvgQ:		7	25	25	3	10	10	4	3	3	2	6	2
*****													
Note: Queue reported is the number of cars per lane.													

Tier 4a AM		Thu Feb 4, 2010 15:00:53										Page 8-1		
		19th Ave CS												
		Tier 4a												
Level Of Service Computation Report														
2000 HCM Operations Method (Future Volume Alternative)														
Intersection #1060 Junipero Serra / Holloway														
*****														
Cycle (sec):	100	Critical Vol./Cap.(X):										0.716		
Loss time (sec):	14	Average Delay (sec/veh):										36.9		
Optimal Cycle:	100	Level Of Service:										D		
*****														
Street Name:		Junipero Serra			Holloway									
Approach:		North Bound			South Bound			East Bound			West Bound			
Movement:		L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R		
Control:		Protected			Protected			Protected			Permitted			
Rights:		Include			Include			Include			Permitted			
Min. Green:		19	39	39	19	39	39	28	28	28	28	28		
Y+R:		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Lanes:		1	0	2	1	0	2	1	0	1	0	1		
*****														
Volume Module:		*****												
Base Vol:		234	1520	60	114	956	84	163	106	16	162	129		
Growth Adj:		1.08	1.14	1.07	1.05	1.09	1.06	1.07	1.01	1.05	1.06	1.02		
Initial Bse:		253	1728	64	120	1044	89	175	107	17	171	132		
Added Vol:		63	59	2	12	5	-18	25	-12	0	-6	-12		
PasserByVol:		0	0	0	0	0	0	0	0	0	0	0		
Initial Fut:		316	1787	66	132	1049	71	200	95	17	165	120		
User Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
PHF Adj:		0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98		
PHF Volume:		322	1823	68	135	1070	72	204	97	17	169	123		
Reduct Vol:		0	0	0	0	0	0	0	0	0	0	0		
Reduced Vol:		322	1823	68	135	1070	72	204	97	17	169	123		
PCE Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
MLF Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
FinalVolume:		322	1823	68	135	1070	72	204	97	17	169	123		
*****														
Saturation Flow Module:		*****												
Sat/Lane:		1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Adjustment:		0.93	0.89	0.89	0.93	0.88	0.88	0.65	0.98	0.83	0.68	0.98		
Lanes:		1.00	2.89	0.11	1.00	2.81	0.19	1.00	1.00	1.00	1.00	1.00		
Final Sat:		1769	4877	181	1769	4719	319	1227	1862	1583	1289	1862		
*****														
Capacity Analysis Module:		*****												
Vol/Sat:		0.18	0.37	0.37	0.08	0.23	0.23	0.17	0.05	0.01	0.13	0.07		
Crit Moves:		*****												
Green/Cycle:		0.19	0.39	0.39	0.19	0.39	0.39	0.28	0.28	0.28	0.28	0.28		
Volume/Cap:		0.96	0.96	0.96	0.40	0.58	0.58	0.59	0.19	0.04	0.47	0.24		
Delay/Veh:		79.9	39.5	39.5	39.0	23.0	23.0	38.5	28.1	26.4	34.1	28.8		
User DelAdj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
AdjDel/Veh:		79.9	39.5	39.5	39.0	23.0	23.0	38.5	28.1	26.4	34.1	28.8		
LOS by Move:		E	D	D	D	C	C	D	C	C	C	C		
HCM2kAvgQ:		10	20	20	3	9	9	6	2	0	5	3		
*****														
Note: Queue reported is the number of cars per lane.														



Tier 4a AM	Thu Feb 4, 2010 15:00:53	Page 9-1										
19th Ave CS												
Tier 4a												
Level of Service Computation Report												
2000 HCM Operations Method (Future Volume Alternative)												
*****												
Intersection #1070 Junipero Serra / 19th												
*****												
Cycle (sec):	110	Critical Vol./Cap.(X):	0.968									
Loss Time (sec):	0	Average Delay (sec/veh):	68.8									
Optimal Cycle:	180	Level of Service:	E									
*****												
Street Name:	Junipero Serra											
Approach:	North Bound	South Bound	East Bound	West Bound								
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Split Phase		Split Phase		Permitted		Permitted					
Rights:	Include		Ignore		Ovl							
Min. Green:	46	46	46	18	18	18	9	9	9	9	9	9
Y+R:	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
Lanes:	3	0	1	0	0	4	0	1	0	0	1	0
*****												
Volume Module:												
Base Vol:	2208	1679	8	0	1210	4	0	71	3047	0	56	62
Growth Adj:	1.13	1.14	1.12	1.10	1.09	1.11	1.12	1.10	1.10	1.11	1.12	1.13
Initial Bse:	2494	1908	9	0	1321	4	0	78	3345	0	63	70
Added Vol:	61	108	3	0	-1	0	0	21	119	0	0	15
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	2555	2016	12	0	1320	4	0	99	3464	0	63	85
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	2607	2058	12	0	1347	0	0	101	3535	0	64	87
Reduc Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	2607	2058	12	0	1347	0	0	101	3535	0	64	87
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	2607	2058	12	0	1347	0	0	101	3535	0	64	87
*****												
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
AdjAdjustment:	0.99	0.93	0.93	1.00	0.89	1.00	1.00	0.98	0.81	1.00	0.90	0.90
Lanes:	3.00	1.99	0.01	0.00	4.00	1.00	0.00	1.00	3.00	0.00	0.43	0.57
Final Sat:	5662	3513	21	0	6778	1900	0	1862	4596	0	730	987
*****												
Capacity Analysis Module:												
Vol/Sat:	0.46	0.59	0.59	0.00	0.20	0.00	0.00	0.05	0.77	0.00	0.09	0.09
Crit Moves:	*****											
Green/Cycle:	0.50	0.50	0.50	0.21	0.21	0.21	0.12	0.12	0.67	0.12	0.12	0.12
Volume/Cap:	0.93	1.18	1.18	0.00	0.96	0.00	0.00	0.44	1.15	0.00	0.71	0.71
Delay/Veh:	26.8	109	109.0	0.0	58.6	0.0	0.0	50.6	80.9	0.0	64.4	64.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	26.8	109	109.0	0.0	58.6	0.0	0.0	50.6	80.9	0.0	64.4	64.4
LOS by Move:	C	F	F	A	E	A	A	D	F	A	E	E
HCM2kAvgQ:	28	57	57	0	15	0	0	4	69	0	6	6
*****												
Note: Queue reported is the number of cars per lane.												
Traffic 8.0.0715 © 2008 Bowling Assoc. Licensed to AECOM, LOS ANGELES												

Tier 4a AM	Thu Feb 4, 2010 15:00:53	Page 10-1										
19th Ave CS												
Tier 4a												
Level of Service Computation Report												
2000 HCM Operations Method (Future Volume Alternative)												
*****												
Intersection #1075 Junipero Serra / Chumassero												
*****												
Cycle (sec):	90	Critical Vol./Cap.(X):	0.997									
Loss Time (sec):	10	Average Delay (sec/veh):	19.4									
Optimal Cycle:	176	Level Of Service:	B									
*****												
Street Name:	Chumassero											
Approach:	North Bound	South Bound	East Bound	West Bound								
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Protected	Protected	Split Phase	Split Phase	Split Phase	Split Phase	Split Phase	Split Phase	Split Phase	Split Phase	Split Phase	Split Phase
Rights:	Include	Include	Ovl	Include	Include	Include	Include	Include	Include	Include	Include	Include
Min. Green:	10	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	4	0	0	0	3	1	0	0	0	0
*****												
Volume Module:												
Base Vol:	8	3895	0	0	4214	75	0	0	107	0	0	0
Growth Adj:	1.13	1.14	1.12	1.10	1.03	1.11	1.00	1.00	1.05	1.00	1.00	1.00
Initial Bse:	9	4440	0	0	4340	83	0	0	112	0	0	0
Added Vol:	66	172	0	0	180	-62	0	0	206	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	75	4612	0	0	4520	21	0	0	318	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	77	4706	0	0	4613	22	0	0	325	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	77	4706	0	0	4613	22	0	0	325	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	77	4706	0	0	4613	22	0	0	325	0	0	0
*****												
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.89	1.00	1.00	0.89	0.89	1.00	1.00	0.85	1.00	1.00	1.00
Lanes:	1.00	4.00	0.00	0.00	3.98	0.02	0.00	0.00	1.00	0.00	0.00	0.00
Final Sat:	1769	6778	0	0	6739	32	0	0	1611	0	0	0
*****												
Capacity Analysis Module:												
Vol/Sat:	0.04	0.69	0.00	0.00	0.68	0.68	0.00	0.00	0.20	0.00	0.00	0.00
Crit Moves:	*****											
Green/Cycle:	0.11	0.80	0.00	0.00	0.69	0.69	0.00	0.00	0.20	0.00	0.00	0.00
Volume/Cap:	0.39	0.87	0.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00
Delay/Veh:	38.4	7.7	0.0	0.0	26.3	26.3	0.0	0.0	85.3	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	38.4	7.7	0.0	0.0	26.3	26.3	0.0	0.0	85.3	0.0	0.0	0.0
LOS by Move:	D	A	A	A	A	C	A	A	F	A	A	A
HCM2kAvgQ:	2	27	0	0	36	36	0	0	14	0	0	0
*****												
Note: Queue reported is the number of cars per lane.												
Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES												

19th Ave CS

Tier 4a

## Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1080 Junipero Serra / I-280 NB On-Ramp / John Daly

\*\*\*\*\*

Cycle (sec): 125

Loss Time (sec): 12

Optimal Cycle: 83

\*\*\*\*\*

Critical Vol./Cap.(X): 0.801

Average Delay (sec/veh): 40.5

Level Of Service: D

\*\*\*\*\*

Street Name:Junipero Serra / I-280 NB On-Ramp

Approach: North Bound

Movement: L - T - R L - T - R L - T - R L - T - R

\*\*\*\*\*

Control: Split Phase Split Phase Split Phase Split Phase

Rights: Ovl Include Ovl

Min. Green: 6 6 6 6 31 31 31 6 6 6

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 2 0 1 1 1 0 0 1 2 1 0 1 1 1 2 0 1

\*\*\*\*\*

Volume Module:

Base Vol: 337 335 364 104 169 262 665 779 99 59 746 303

Growth Adj: 1.05 1.12 1.14 1.00 1.00 1.00 1.14 1.16 1.00 1.00 1.00 1.05

Initial Bse: 354 374 414 104 169 262 756 902 99 59 746 318

Added Vol: 73 22 0 0 0 0 1 11 201 0 0 7

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 427 396 414 104 169 262 757 913 300 59 746 325

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 435 404 422 106 172 267 773 931 306 60 761 332

Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 435 404 422 106 172 267 773 931 306 60 761 332

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 435 404 422 106 172 267 773 931 306 60 761 332

\*\*\*\*\*

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 0.90 0.86 0.86 0.93 0.89 0.89 0.87 0.89 0.89 0.89 0.89 0.83

Lanes: 2.00 1.47 1.53 1.00 0.78 1.22 2.00 2.00 1.00 1.00 3.00 1.00

Final Sat.: 3432 2395 2503 1769 1327 2058 3289 3391 1695 1688 5063 1583

\*\*\*\*\*

Capacity Analysis Module:

Vol/Sat: 0.13 0.17 0.17 0.06 0.13 0.13 0.23 0.27 0.18 0.04 0.15 0.21

Crit Moves: \*\*\*\*

Green/Cycle: 0.21 0.21 0.40 0.16 0.16 0.51 0.34 0.34 0.34 0.19 0.19 0.35

Volume/Cap: 0.60 0.80 0.42 0.37 0.80 0.26 0.68 0.80 0.53 0.19 0.80 0.60

Delay/Veh: 46.0 51.4 27.3 47.5 58.6 17.7 35.9 39.1 33.0 42.8 53.1 35.2

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 46.0 51.4 27.3 47.5 58.6 17.7 35.9 39.1 33.0 42.8 53.1 35.2

LOS by Move: D D D E B D D C D D

HCM2kAVGQ: 8 13 8 4 10 5 13 17 9 2 12 11

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

19th Ave CS

Tier 4a

## Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1090 Junipero Serra / I-280 SB On-Ramp / John Daly

\*\*\*\*\*

Cycle (sec): 120

Loss Time (sec): 8

Optimal Cycle: 41

\*\*\*\*\*

Critical Vol./Cap.(X): 0.620

Average Delay (sec/veh): 20.4

Level Of Service: C

\*\*\*\*\*

Street Name:Junipero Serra / I-280 SB On-Ramp

Approach: North Bound

Movement: L - T - R L - T - R L - T - R L - T - R

\*\*\*\*\*

Control: Split Phase Split Phase Split Phase Split Phase

Rights: Ovl Include Ovl

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 0 0 2 0 0 0 0 0 2 1 0 2 0 2 0

\*\*\*\*\*

Volume Module:

Base Vol: 0 0 316 0 0 0 0 0 0 0 0 0 0 0 0 0

Growth Adj: 1.02 1.00 1.01 1.13 1.23 1.13 1.01 1.03 1.13 1.13 1.03 1.02

Initial Bse: 0 0 320 0 0 0 0 0 0 0 0 0 0 0 0 0

Added Vol: 0 0 23 0 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 0 343 0 0 0 0 0 0 0 0 0 0 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 0 350 0 0 0 0 0 0 0 0 0 0 0 0 0

Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 0 350 0 0 0 0 0 0 0 0 0 0 0 0 0

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 0 0 350 0 0 0 0 0 0 0 0 0 0 0 0 0

\*\*\*\*\*

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 1.00 1.00 0.73 1.00 1.00 1.00 1.00 0.86 0.86 0.90 0.95 1.00

Lanes: 0.00 0.00 2.00 0.00 0.00 0.00 0.00 0.00 2.21 0.79 2.00 0.00

Final Sat.: 0 0 2786 0 0 0 0 0 3598 1287 3432 3610

\*\*\*\*\*

Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.13 0.00 0.00 0.00 0.00 0.41 0.41 0.17 0.00 0.00

Crit Moves: \*\*\*\*

Green/Cycle: 0.00 0.00 0.27 0.00 0.00 0.00 0.00 0.66 0.66 0.27 0.00 0.00

Volume/Cap: 0.00 0.00 0.47 0.00 0.00 0.00 0.00 0.62 0.62 0.62 0.00 0.00

Delay/Veh: 0.0 0.0 37.0 0.0 0.0 0.0 0.0 11.9 11.9 39.7 0.0 0.0

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 0.0 37.0 0.0 0.0 0.0 0.0 11.9 11.9 39.7 0.0 0.0

LOS by Move: A A D A A A A B D A A

HCM2kAVGQ: 0 0 6 0 0 0 0 16 16 9 0 0

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

Tier 4a AM	Thu Feb 4, 2010 15:00:53	Page 13-1
19th Ave CS Tier 4a		
Level of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1100 19th / Taraval		
Cycle (sec):	90	Critical Vol./Cap.(X): 0.829
Loss Time (sec):	10	Average Delay (sec/veh): 28.9
Optimal Cycle:	89	Level Of Service: C
*****		
Street Name:	North Bound	South Bound
Approach:	19th	Taraval
Movement:	L - T - R	L - T - R
Control:	Permitted	Permitted
Rights:	Include	Include
Min. Green:	56 56 56	23 23 23
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 2 1 0 0	1 1 0 0 1 0
*****		
Volume Module:		
Base Vol:	0 2276 57	2 2656 58
Growth Adj:	1.10 1.14 1.06	1.04 1.09 1.08
Initial Bse:	0 2587 61	2 2900 63
Added Vol:	0 146 3	0 60 0
PasserByVol:	0 0 0	0 0 0
Initial Fut:	0 2733 64	2 2960 63
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	0 2789 65	2 3021 64
Reduced Vol:	0 0 0	0 0 0
Reduced Vol:	0 2789 65	2 3021 64
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00
FinalVolume:	0 2789 65	2 3021 64
*****		
Saturation Flow Module:		
Sat/Lane:	1900 1900	1900 1900
Adjustment:	1.00 0.89	0.84 0.84
Lanes:	0.00 2.93	0.07 0.21
Final Sat.:	0.4953 115	3.4662 99
*****		
Capacity Analysis Module:		
Vol/Sat:	0.00 0.56	0.56 0.65
Crit Moves:	0.00 0.63	0.63 0.63
Green/Cycle:	0.00 0.89	1.02 1.02
Volume/Cap:	0.00 18.0	39.1 39.1
Delay/Veh:	1.00 1.00	1.00 1.00
User DelAdj:	0.0 18.0	39.1 39.1
AdjDel/Veh:	0.0 18.0	39.1 39.1
LOS by Move:	A B B	D D D
HCMAvgQ:	0 28 28	42 42
*****		
Note: Queue reported is the number of cars per lane.		

Tier 4a AM	Thu Feb 4, 2010 15:00:53	Page 14-1
19th Ave CS Tier 4a		
Level of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1110 19th / Sloat		
Cycle (sec):	90	Critical Vol./Cap.(X): 1.508
Loss Time (sec):	9	Average Delay (sec/veh): 119.3
Optimal Cycle:	180	Level Of Service: F
*****		
Street Name:	North Bound	South Bound
Approach:	19th	Sloat
Movement:	L - T - R	L - T - R
Control:	Permitted	Permitted
Rights:	Include	Include
Min. Green:	33 33 33	12 49 49
Y+R:	10.0 10.0 10.0	10.0 10.0 10.0
Lanes:	0 0 2 1 0 1	0 2 1 0 1 1
*****		
Volume Module:		
Base Vol:	0 1964 25	312 2778 127
Growth Adj:	1.16 1.14 1.16	1.14 1.09 1.14
Initial Bse:	0 2232 29	355 3034 145
Added Vol:	0 110 2	4 35 5
PasserByVol:	0 0 0	0 0 0
Initial Fut:	0 2342 31	359 3069 150
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	0 2390 32	367 3131 153
Reduced Vol:	0 0 0	0 0 0
Reduced Vol:	0 2390 32	367 3131 153
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00
FinalVolume:	0 2390 32	367 3131 153
*****		
Saturation Flow Module:		
Sat/Lane:	1900 1900	1900 1900
Adjustment:	1.00 0.89	0.89 0.89
Lanes:	0.00 2.96	0.04 1.00
Final Sat.:	0.5007 66	1769 4813 235
*****		
Capacity Analysis Module:		
Vol/Sat:	0.00 0.48	0.48 0.21
Crit Moves:	0.00 0.37	0.37 0.15
Green/Cycle:	0.00 1.30	1.39 1.26
Volume/Cap:	0.00 166.3	237.4 137.5
Delay/Veh:	1.00 1.00	1.00 1.00
User DelAdj:	0.0 166.3	237.4 137.5
AdjDel/Veh:	0.0 166.3	237.4 137.5
LOS by Move:	A F F	F F F
HCMAvgQ:	0 49 49	25 66 66
*****		
Note: Queue reported is the number of cars per lane.		



19th Ave CS  
Tier 4a

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1120 19th / Ocean  
\*\*\*\*\*  
Cycle (sec): 90 Critical Vol./Cap.(X): 1.093  
Loss Time (sec): 9 Average Delay (sec/veh): 46.1  
Optimal Cycle: 180 Level Of Service: D  
\*\*\*\*\*

Street Name: 19th Ocean  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: WideBypass Include Include  
Min. Green: 54 54 54 26 26 26 26 26 26  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 1 1 0 0 0 2 1 0 1 0 0 0 0 1 0 0

Volume Module:  
Base Vol: 2 1809 45 0 2766 187 83 274 47 21 230 157  
Growth Adj: 1.16 1.14 1.16 1.14 1.09 1.14 1.16 1.19 1.14 1.14 1.19 1.16  
Initial Bse: 2 2056 52 0 3020 213 96 325 54 24 273 182  
Added Vol: 0 112 0 0 35 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 2 2168 52 0 3055 213 96 325 54 24 273 182  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 2 2212 53 0 3118 217 98 332 55 24 278 186  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 2 2212 53 0 3118 217 98 332 55 24 278 186  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 2 2212 53 0 3118 217 98 332 55 24 278 186

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.78 0.78 0.78 1.00 0.88 0.88 0.83 0.96 0.96 0.80 0.80 0.80  
Lanes: 0.01 2.92 0.07 0.00 2.80 0.20 1.00 0.86 0.14 0.05 0.57 0.38  
Final Sat.: 5 4336 105 0 4704 328 1570 1565 258 76 867 580

Capacity Analysis Module:  
Vol/Sat: 0.51 0.51 0.51 0.00 0.66 0.66 0.06 0.21 0.21 0.32 0.32 0.32  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.60 0.60 0.60 0.60 0.29 0.29 0.29 0.29 0.29 0.29 0.29  
Volume/Cap: 0.85 0.85 0.85 0.00 1.10 1.10 0.21 0.72 0.72 1.09 1.09 1.09  
Delay/Veh: 12.1 12.1 12.1 0.0 63.0 63.0 25.0 36.5 36.5 100.8 101 100.8  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 12.1 12.1 12.1 0.0 63.0 63.0 25.0 36.5 36.5 100.8 101 100.8  
LOS by Move: B B A E A E C D D F F F  
HCM2kAvgQ: 16 16 16 0 46 46 2 10 10 23 23 23  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4a

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1130 19th / Eucalyptus  
\*\*\*\*\*  
Cycle (sec): 90 Critical Vol./Cap.(X): 0.865  
Loss Time (sec): 9 Average Delay (sec/veh): 23.1  
Optimal Cycle: 90 Level Of Service: C  
\*\*\*\*\*

Street Name: 19th Eucalyptus  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 56 56 56 56 56 56 25 25 25 25 25 25  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 0 2 1 0 1 1 0 0 1 0 0

Volume Module:  
Base Vol: 0 1848 21 0 2818 58 74 125 90 10 148 14  
Growth Adj: 1.16 1.14 1.16 1.14 1.09 1.14 1.16 1.19 1.14 1.14 1.19 1.16  
Initial Bse: 0 2100 24 0 3077 66 86 148 103 11 176 16  
Added Vol: 0 105 3 0 19 16 8 14 0 7 30 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2205 27 0 3096 82 94 162 103 18 206 16  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2250 28 0 3159 84 96 166 105 19 210 17  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 0 2250 28 0 3159 84 96 166 105 19 210 17  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2250 28 0 3159 84 96 166 105 19 210 17

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 1.00 0.89 0.89 0.66 0.66 0.66 0.94 0.94  
Lanes: 0.00 2.96 0.04 0.00 2.92 0.08 1.00 1.23 0.77 0.08 0.85 0.07  
Final Sat.: 0 5011 62 0 4932 131 1251 1533 969 136 1522 120

Capacity Analysis Module:  
Vol/Sat: 0.00 0.45 0.45 0.00 0.64 0.64 0.08 0.11 0.11 0.14 0.14 0.14  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.62 0.62 0.62 0.62 0.28 0.28 0.28 0.28 0.28 0.28 0.28  
Volume/Cap: 0.00 0.72 0.72 0.00 1.03 1.03 0.27 0.38 0.38 0.49 0.49 0.49  
Delay/Veh: 0.0 7.5 7.5 0.0 33.0 33.0 25.5 27.1 27.1 30.1 30.1 30.1  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 7.5 7.5 0.0 33.0 33.0 25.5 27.1 27.1 30.1 30.1 30.1  
LOS by Move: A A A A C C C C C C C C  
HCM2kAvgQ: 0 11 11 0 36 36 2 3 3 6 6 6  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

Tier 4a AM Thu Feb 4, 2010 15:00:53 Page 17-1  
19th Ave CS  
Tier 4a  
Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1140 19th / Winston  
Cycle (sec): 90 Critical Vol./Cap. (X): 1.322  
Loss Time (sec): 13 Average Delay (sec/veh): 84.1  
Optimal Cycle: 180 Level of Service: F  
Street Name: North Bound South Bound East Bound West Bound  
Approach: 19th  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Protected Permitted Permitted Permitted  
Rights: Include Include Add Lane Include  
Min. Green: 15 43 43 43 18 18 18 18 18 18  
Y+R: 13.0 13.0 13.0 13.0 13.0 13.0 13.0 13.0 13.0 13.0  
Lanes: 2 0 2 1 0 0 0 3 0 1 1 1 0 1 0 1 0 1 0  
Volume Module:  
Base Vol: 386 1920 59 0 2985 60 56 164 171 51 291 28  
Growth Adj: 1.06 1.14 1.00 1.00 1.09 1.04 1.00 1.00 1.00 1.04 1.00 1.06  
Initial Bse: 409 2182 59 0 3260 62 56 164 171 53 291 30  
Added Vol: 83 43 -30 0 -34 65 64 181 29 36 168 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 492 2225 29 0 3226 127 120 345 200 89 459 30  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 502 2271 30 0 3291 130 122 352 204 91 468 30  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
User Adj: 502 2271 30 0 3291 130 122 352 204 91 468 30  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Final Volume: 502 2271 30 0 3291 130 122 352 204 91 468 30  
Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adj: 0.90 0.89 0.89 0.89 0.89 0.89 0.89 0.89 0.89 0.89 0.89  
Lanes: 2.00 2.96 0.04 0.00 3.00 1.00 1.00 2.00 1.00 0.31 1.59 0.10  
Final Sat.: 3432 5008 65 0 6354 1583 502 754 1583 395 2039 132  
Capacity Analysis Module:  
Vol/Sat: 0.15 0.45 0.45 0.00 0.52 0.08 0.24 0.47 0.13 0.23 0.23 0.23  
Crit Moves: .....  
Green/Cycle: 0.17 0.48 0.48 0.48 0.48 0.20 0.20 0.20 0.20 0.20 0.20 0.20  
Volume/Cap: 0.98 0.95 0.95 0.00 1.08 0.17 1.22 2.34 0.64 1.15 1.15 1.15  
Delay/Veh: 53.7 27.7 27.7 0.0 63.2 11.2 155.6 652 42.8 123.5 124 123.5  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDe/Veh: 53.7 27.7 27.7 0.0 63.2 11.2 155.6 652 42.8 123.5 124 123.5  
LOS by Move: F C C A E B F D F F F  
HCM AvgQ: 7 21 21 0 50 2 9 19 6 15 15 15  
Note: Queue reported is the number of cars per lane.

Tier 4a AM Thu Feb 4, 2010 15:00:53 Page 18-1  
19th Ave CS  
Tier 4a  
Level of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)  
Intersection #1150 19th / Buckingham  
Average Delay (sec/veh): 1.8 Worst Case Level of Service: F [ 77.7]  
Street Name: North Bound South Bound East Bound West Bound  
Approach: 19th  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Uncontrolled Uncontrolled Uncontrolled Uncontrolled  
Rights: Include Include Include Include  
Lanes: 0 3 0 0 0 3 0 1 0 0 0 1 0 0 0 0  
Volume Module:  
Base Vol: 0 2365 0 0 3145 61 0 0 122 0 0 0  
Growth Adj: 1.00 1.14 1.04 1.02 1.09 1.00 1.04 1.00 1.02 1.00 1.00 1.00  
Initial Bse: 0 2688 0 0 3434 61 0 0 124 0 0 0  
Added Vol: 0 96 0 0 -28 59 0 0 29 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2784 0 0 3406 120 0 0 153 0 0 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2841 0 0 3476 122 0 0 156 0 0 0  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Final Volume: 0 2841 0 0 3476 122 0 0 156 0 0 0  
Critical Gap Module:  
Critical Gap: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 6.9 xxxxxx xxxxxx xxxxxx  
FollowUpTm: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 3.3 xxxxxx xxxxxx xxxxxx  
Capacity Module:  
Conflict Vol: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 1159 xxxxxx xxxxxx xxxxxx  
Potential: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 189 xxxxxx xxxxxx xxxxxx  
Move Cap.: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 189 xxxxxx xxxxxx xxxxxx  
Volume/Cap: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 0.83 xxxxxx xxxxxx xxxxxx  
Level of Service Module:  
2Way95thQ: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 5.9 xxxxxx xxxxxx xxxxxx  
Control Del: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 77.7 xxxxxx xxxxxx xxxxxx  
LOS by Move: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Movement: Shared Cap.: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
Shared Queue: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
Shrd ConDel: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
Shared LOS: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
ApproachDel: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
ApproachLOS: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
Note: Queue reported is the number of cars per lane.

Tier 4a AM		Thu Feb 4, 2010 15:00:53										Page 19-1	
		19th Ave CS											
		Tier 4a											
Level Of Service Computation Report													
2000 HCM Operations Method (Future Volume Alternative)													
Intersection #1160 19th / Holloway													
*****													
Cycle (sec):	90	Critical Vol./Cap.(X):										0.930	
Loss Time (sec):	9	Average Delay (sec/veh):										59.7	
Optimal Cycle:	114	Level Of Service:										E	
*****													
Street Name: 19th Holloway													
Approach:	North Bound		South Bound		East Bound		West Bound						
Movement:	L	T	R	L	T	R	L	T	R	L	T	R	
Control:	Permitted		Permitted		Permitted		Permitted						
Rights:	Include		Include		Include		Include						
Min. Green:	48	48	48	48	48	48	33	33	33	33	33	33	
Y+R:	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	
Lanes:	0	2	1	0	0	0	3	0	1	0	1	0	1
*****													
Volume Module:													
Base Vol:	0	2288	130	0	3078	138	56	143	55	37	370	50	
Growth Adj:	1.07	1.14	1.18	1.16	1.09	1.05	1.18	1.23	1.16	1.05	1.00	1.07	
Initial Bse:	0	2601	154	0	3361	144	66	176	64	39	370	53	
Added Vol:	0	29	-21	0	-22	22	66	34	85	-4	37	0	
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0	
Initial Fut:	0	2630	133	0	3339	166	132	210	149	35	407	53	
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
PHF Volume:	0	2683	135	0	3407	170	135	214	152	35	415	54	
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0	
Reduced Vol:	0	2683	135	0	3407	170	135	214	152	35	415	54	
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
FinalVolume:	0	2683	135	0	3407	170	135	214	152	35	415	54	
*****													
Saturation Flow Module:													
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Adjustment:	1.00	0.89	0.89	1.00	0.98	0.83	0.58	0.58	0.58	0.81	0.81	0.81	
Lanes:	0.00	2.86	0.14	0.00	3.00	1.00	0.54	0.85	0.61	0.14	1.64	0.22	
Final Sat:	0	4805	242	0	5592	1583	593	940	667	216	2533	332	
*****													
Capacity Analysis Module:													
Vol/Sat:	0.00	0.56	0.56	0.00	0.61	0.11	0.23	0.23	0.23	0.16	0.16	0.16	
Crit Moves:	*****												
Green/Cycle:	0.00	0.53	0.53	0.00	0.53	0.53	0.37	0.37	0.37	0.37	0.37	0.37	
Volume/Cap:	0.00	1.05	1.05	0.00	1.14	0.20	0.62	0.62	0.62	0.45	0.45	0.45	
Delay/Veh:	0.0	46.2	46.2	0.0	83.6	8.3	26.9	26.9	26.9	22.9	22.9	22.9	
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
AdjDel/Veh:	0.0	46.2	46.2	0.0	83.6	8.3	26.9	26.9	26.9	22.9	22.9	22.9	
LOS by Move:	A	D	D	A	F	A	C	C	C	C	C	C	
HC2KAVGQ:	0	33	33	0	52	1	7	7	7	6	6	6	
*****													
Note: Queue reported is the number of cars per lane.													

Tier 4a AM		Thu Feb 4, 2010 15:00:53										Page 20-1	
		19th Ave CS											
		Tier 4a											
Level Of Service Computation Report													
2000 HCM Operations Method (Future Volume Alternative)													
Intersection #1170 19th / Crespi													
*****													
Cycle (sec):	110	Critical Vol./Cap.(X):										0.752	
Loss Time (sec):	0	Average Delay (sec/veh):										75.7	
Optimal Cycle:	75	Level Of Service:										E	
*****													
Street Name: 19th Crespi													
Approach: North Bound South Bound East Bound West Bound													
Movement: L - T - R L - T - R L - T - R L - T - R													
Control: Permitted Permitted Permitted Permitted													
Rights: Include Ignore Include Include													
Min. Green:	48 48 48	53 53 53	22 22 22	22 22 22	0 0 0								
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0				
Lanes:	0 0 3	0 0 2	1 0 1	0 0 1	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0				
Volume Module:													
Base Vol:	0 2266	0 0 3060	110 152	0 68	0 0 0								
Growth Adj:	1.14 1.14	1.05 1.02 1.09	1.12 1.05 1.00	1.02 1.12 1.14	1.14 1.14								
Initial Bse:	0 2576	0 0 3342	123 159	0 70	0 0 0								
Added Vol:	0 61	0 0 102	-43 -53	0 38	0 0 0								
PasserByVol:	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0								
Initial Fut:	0 2637	0 0 3444	80 106	0 108	0 0 0								
User Adj:	1.00 1.00	1.00 1.00 1.00	0.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00								
PHF Adj:	0.98 0.98	0.98 0.98 0.98	0.00 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98								
PHF Volume:	0 2690	0 0 3514	0 108	0 110	0 0 0								
Reduct Vol:	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0								
Reduced Vol:	0 2690	0 0 3514	0 108	0 110	0 0 0								
PCE Adj:	1.00 1.00	1.00 1.00 1.00	0.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00								
MLF Adj:	1.00 1.00	1.00 1.00 1.00	0.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00								
FinalVolume:	0 2690	0 0 3514	0 108	0 110	0 0 0								
Saturation Flow Module:													
Sat/Lane:	1900 1900	1900 1900 1900	1900 1900 1900	1900 1900 1900	1900 1900 1900								
Adjustment:	1.00 0.89	1.00 1.00 0.89	0.91 0.93 1.00	0.83 1.00 1.00	1.00 1.00 1.00								
Lanes:	0.00 3.00	0.00 0.00 3.00	0.00 1.00 0.00	1.00 0.00 1.00	0.00 0.00 0.00								
Final Sat:	0 5083	0 0 5083	0 1769	0 1583	0 0 0								
Capacity Analysis Module:													
Vol/Sat:	0.00 0.53	0.00 0.00 0.69	0.00 0.06 0.00	0.07 0.00 0.00	0.00 0.00 0.00								
Crit Moves:													
Green/Cycle:	0.47 0.47	0.47 0.61 0.61	0.61 0.29 0.29	0.29 0.00 0.00	0.00 0.00 0.00								
Volume/Cap:	0.00 1.12	0.00 0.00 1.13	0.00 0.21 0.00	0.24 0.00 0.00	0.00 0.00 0.00								
Delay/Veh:	0.0 83.2	0.0 0.0 72.8	0.0 30.3 0.0	30.8 0.0 0.0	0.0 0.0 0.0								
User DelAdj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00								
AdjDel/Veh:	0.0 83.2	0.0 0.0 72.8	0.0 30.3 0.0	30.8 0.0 0.0	0.0 0.0 0.0								
LOS by Move:	A F A	A A E A	C C A C	A C A A	A A A A								
HC2KavgQ:	0 50	0 0 58	0 3	0 3	0 0 0								
Note: Queue reported is the number of cars per lane.													



19th Ave CS  
Tier 4a

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1181 Chumasero / Brotherhood  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.703  
Loss Time (sec): 8 Average Delay (sec/veh): 19.7  
Optimal Cycle: 91 Level Of Service: B  
\*\*\*\*\*

Street Name: Chumasero Brotherhood  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Split Phase Split Phase Protected Protected Permitted  
Rights: Include Include Include Include Include  
Min. Green: 20 20 15 15 21 47 21 47  
Y+R: 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0  
Lanes: 0 0 1 0 0 0 1 0 2 0 0 0 2 1 0

Volume Module:  
Base Vol: 0 0 145 0 54 26 1538 0 0 1684 176  
Growth Adj: 1.08 1.06 1.07 1.01 1.00 1.02 1.07 1.08 1.01 1.02 1.09 1.08  
Initial Bse: 0 0 147 0 55 28 1657 0 0 1842 190  
Added Vol: 0 0 0 65 0 -14 -18 559 0 0 151 1  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 0 0 212 0 41 10 2216 0 0 1993 191  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 0 0 216 0 42 10 2261 0 0 2034 194  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 0 0 216 0 42 10 2261 0 0 2034 194  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 0 0 216 0 42 10 2261 0 0 2034 194

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.80 0.80 1.00 0.69 0.75 0.69 0.93 0.93 1.00 1.00 0.88 0.88  
Lanes: 0.00 1.00 0.00 0.84 0.00 0.16 1.00 2.00 0.00 0.00 2.74 0.26  
Final Sat.: 0 1520 0 1098 0 213 1769 3538 0 0 4579 438

Capacity Analysis Module:  
Vol/Sat: 0.00 0.00 0.00 0.20 0.00 0.20 0.01 0.64 0.00 0.00 0.44 0.44  
Crit Moves: \*\*\*\*\*  
Green/Cycle: 0.00 0.00 0.00 0.22 0.00 0.22 0.21 0.70 0.00 0.00 0.49 0.49  
Volume/Cap: 0.00 0.00 0.00 0.90 0.00 0.90 0.03 0.91 0.00 0.00 0.90 0.90  
Delay/Veh: 0.0 0.0 0.0 71.4 0.0 71.4 31.5 9.4 0.0 0.0 24.1 24.1  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 0.0 0.0 71.4 0.0 71.4 31.5 9.4 0.0 0.0 24.1 24.1  
LOS by Move: A A A A E A E C A A C C  
HCM2AvgQ: 0 0 0 11 0 11 0 21 0 0 25 25  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4a

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1182 Thomas More / Brotherhood  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.747  
Loss Time (sec): 8 Average Delay (sec/veh): 23.0  
Optimal Cycle: 96 Level Of Service: C  
\*\*\*\*\*

Street Name: Thomas More Brotherhood  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Split Phase Split Phase Protected Protected Protected  
Rights: Include Include Include Include Include  
Min. Green: 20 20 20 15 15 21 47 21 47  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 1 0 0 0 0 0 0 0 2 1 0 1 0 3 0 0

Volume Module:  
Base Vol: 44 0 99 0 0 0 0 1613 70 175 1808 0  
Growth Adj: 1.08 1.06 1.07 1.01 1.00 1.02 1.07 1.08 1.01 1.02 1.09 1.08  
Initial Bse: 47 0 106 0 0 0 0 1737 71 179 1978 0  
Added Vol: 0 0 0 0 0 0 0 624 0 0 151 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 47 0 106 0 0 0 0 2361 71 179 2129 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 48 0 108 0 0 0 0 2410 72 183 2172 0  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 48 0 108 0 0 0 0 2410 72 183 2172 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 48 0 108 0 0 0 0 2410 72 183 2172 0

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.88 1.00 0.88 1.00 1.00 1.00 1.00 0.89 0.89 0.93 0.89 1.00  
Lanes: 0.31 0.00 0.69 0.00 0.00 0.00 0.00 2.91 0.09 1.00 3.00 0.00  
Final Sat.: 515 0 1149 0 0 0 0 4915 148 1769 5083 0

Capacity Analysis Module:  
Vol/Sat: 0.09 0.00 0.09 0.00 0.00 0.00 0.00 0.49 0.49 0.10 0.43 0.00  
Crit Moves: \*\*\*\*\*  
Green/Cycle: 0.20 0.00 0.20 0.00 0.00 0.00 0.00 0.51 0.51 0.21 0.72 0.00  
Volume/Cap: 0.47 0.00 0.47 0.00 0.00 0.00 0.00 0.96 0.96 0.49 0.59 0.00  
Delay/Veh: 40.0 0.0 40.0 0.0 0.0 0.0 0.0 34.3 34.3 39.4 7.6 0.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 40.0 0.0 40.0 0.0 0.0 0.0 0.0 34.3 34.3 39.4 7.6 0.0  
LOS by Move: D A D A A A A C C D A A  
HCM2AvgQ: 5 0 5 0 0 0 0 29 29 5 12 0  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.









Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1240 Lake Merced / Winston

Cycle (sec): 90 Critical Vol./Cap.(X): 0.805  
Loss Time (sec): 9 Average Delay (sec/veh): 96.8  
Optimal Cycle: 89 Level Of Service: F  
\*\*\*\*\*

Street Name:	Lake Merced		Winston	
Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Permitted	Protected	Split Phase	Split Phase
Rights:	WideBypass	Include	Include	Include
Min. Green:	34 34 34	17 55 55	0 0 0	25 25 25
Y+R:	10.0 10.0 10.0	10.0 10.0 10.0	10.0 10.0 10.0	10.0 10.0 10.0
Lanes:	0 2 1 0	2 0 2 0	0 0 0 0	2 0 0 1

Volume Module:				
Base Vol:	0 1384 215	218 1789	0 0 0	196 0 181
Growth Adj:	1.00 1.14 1.18	1.16 1.09	1.00 1.18 1.22	1.16 1.00 1.00
Initial Bse:	0 1573 254	252 1934	0 0 0	196 0 181
Added Vol:	0 393 266	116 131	0 0 0	139 0 74
PasserByVol:	0 0 0	0 0 0	0 0 0	0 0 0
Initial Fut:	0 1966 520	368 2085	0 0 0	335 0 255
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	0 2006 530	376 2127	0 0 0	342 0 260
Reduc Vol:	0 0 0	0 0 0	0 0 0	0 0 0
Reduced Vol:	0 2006 530	376 2127	0 0 0	342 0 260
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Final Volume:	0 2006 530	376 2127	0 0 0	342 0 260

Saturation Flow Module:				
Sat/Lane:	1900 1900	1900 1900	1900 1900	1900 1900
Adjustment:	1.00 0.86 0.86	0.90 0.93 1.00	1.00 1.00 1.00	0.90 1.00 0.83
Lanes:	0.00 2.37 0.63	2.00 2.00 0.00	0.00 0.00 0.00	2.00 0.00 1.00
Final Sat.:	0 3896 1030	3432 3538	0 0 0	3432 0 1583

Capacity Analysis Module:				
Vol/Sat:	0.00 0.51 0.51	0.11 0.60 0.00	0.00 0.00 0.00	0.10 0.00 0.16
Crit Moves:				
Green/Cycle:	0.38 0.38 0.38	0.19 0.62 0.62	0.00 0.00 0.00	0.28 0.28 0.28
Volume/Cap:	0.00 1.34 1.34	0.56 0.97 0.00	0.00 0.00 0.00	0.36 0.00 0.59
Delay/Veh:	0.0 184 183.5	36.2 23.0 0.0	0.0 0.0 0.0	27.1 0.0 33.8
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	0.0 184 183.5	36.2 23.0 0.0	0.0 0.0 0.0	27.1 0.0 33.8
LOS by Move:	A F F	D C A	A A A	C A C
HCMAvgQ:	0 56 56	5 32 0	0 0 0	4 0 7

Note: Queue reported is the number of cars per lane.

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1250 Lake Merced / Font

Cycle (sec): 90 Critical Vol./Cap.(X): 1.400  
Loss Time (sec): 7 Average Delay (sec/veh): 160.6  
Optimal Cycle: 180 Level Of Service: F  
\*\*\*\*\*

Street Name:	Lake Merced		Font	
Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Permitted	Protected	Split Phase	Split Phase
Rights:	Ignore	Include	Include	Include
Min. Green:	43 43 43	15 61 61	0 0 0	22 0 22
Y+R:	7.0 7.0 7.0	7.0 7.0 7.0	7.0 7.0 7.0	7.0 7.0 7.0
Lanes:	0 0 2 0	1 0 2 0	0 0 0 0	1 0 0 1

Volume Module:				
Base Vol:	0 1746 48	147 1549	0 0 0	43 0 304
Growth Adj:	1.09 1.14 1.07	1.05 1.09 1.07	1.07 1.01 1.05	1.07 1.04 1.09
Initial Bse:	0 1985 51	154 1692	0 0 0	46 0 331
Added Vol:	0 414 -9	124 178	0 0 0	-8 0 350
PasserByVol:	0 0 0	0 0 0	0 0 0	0 0 0
Initial Fut:	0 2399 42	278 1870	0 0 0	38 0 681
User Adj:	1.00 1.00 0.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.00	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	0 2447 0	284 1908	0 0 0	39 0 695
Reduc Vol:	0 0 0	0 0 0	0 0 0	0 0 0
Reduced Vol:	0 2447 0	284 1908	0 0 0	39 0 695
PCE Adj:	1.00 1.00 0.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 0.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Final Volume:	0 2447 0	284 1908	0 0 0	39 0 695

Saturation Flow Module:				
Sat/Lane:	1900 1900	1900 1900	1900 1900	1900 1900
Adjustment:	1.00 0.93 1.00	0.93 0.93 1.00	1.00 1.00 1.00	0.93 1.00 0.83
Lanes:	0.00 2.00 1.00	1.00 2.00 0.00	0.00 0.00 0.00	1.00 0.00 1.00
Final Sat.:	0 3538 1900	1769 3538	0 0 0	1769 0 1583

Capacity Analysis Module:				
Vol/Sat:	0.00 0.69 0.00	0.16 0.54 0.00	0.00 0.00 0.00	0.02 0.00 0.44
Crit Moves:				
Green/Cycle:	0.48 0.48 0.48	0.17 0.68 0.68	0.00 0.00 0.00	0.24 0.24 0.24
Volume/Cap:	0.00 1.45 0.00	0.96 0.80 0.00	0.00 0.00 0.00	0.09 0.00 1.80
Delay/Veh:	0.0 224 0.0	81.0 6.3 0.0	0.0 0.0 0.0	26.7 0.0 402.2
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	0.0 224 0.0	81.0 6.3 0.0	0.0 0.0 0.0	26.7 0.0 402.2
LOS by Move:	A F A	F A A	A A A	C A F
HCMAvgQ:	0 82 0	12 12 0	0 0 0	1 0 58

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4aLevel of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1261 Lake Merced / Vidal

Cycle (sec): 100 Critical Vol./Cap.(X): 0.925  
 Loss Time (sec): 12 Average Delay (sec/veh): 45.2  
 Optimal Cycle: 122 Level Of Service: D

Street Name: Lake Merced Vidal

North Bound		South Bound		East Bound		West Bound		
L	T	R	L	T	R	L	T	R
41	41	41	11	59	59	0	0	0
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
0	0	2	0	1	1	0	2	0

Control: Permitted Include Protected Include Split Phase Include

Rights: 41 41 41 11 59 59 0 0 0 20 20 20

Min. Green: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Y+R: 0 0 2 0 1 1 0 2 0 0 0 0 1

Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 1

Volume Module:

Base Vol:	0	1899	29	19	1592	0	0	0	0	7	0	11
Growth Adj:	1.00	1.14	1.11	1.09	1.09	1.00	1.00	1.00	1.00	1.10	1.00	1.12
Initial Bse:	0	2165	32	21	1735	0	0	0	0	8	0	12
Added Vol:	0	342	43	65	104	0	0	0	0	64	0	63
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	2507	75	86	1839	0	0	0	0	72	0	75
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	0	2558	77	87	1877	0	0	0	0	73	0	77
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	2558	77	87	1877	0	0	0	0	73	0	77
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	2558	77	87	1877	0	0	0	0	73	0	77

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.93	0.83	0.93	0.93	1.00	1.00	1.00	1.00	0.93	1.00	0.83
Lanes:	0.00	2.00	1.00	1.00	2.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	3538	1583	1769	3538	0	0	0	0	1769	0	1583

Capacity Analysis Module:

Vol/Sat:	0.00	0.72	0.05	0.05	0.53	0.00	0.00	0.00	0.00	0.04	0.00	0.05
Crit Moves:	0.65	0.65	0.65	0.10	0.79	0.00	0.00	0.00	0.00	0.13	0.13	0.13
Green/Cycle:	0.00	1.11	0.07	0.49	0.67	0.00	0.00	0.00	0.00	0.32	0.00	0.37
Volume/Cap:	0.00	0.74	0.00	0.66	0.66	0.00	0.00	0.00	0.00	0.43	0.00	0.44
Delay/Veh:	0.00	74.9	6.6	52.2	6.0	0.0	0.0	0.0	0.0	43.1	0.0	44.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.00	74.9	6.6	52.2	6.0	0.0	0.0	0.0	0.0	43.1	0.0	44.9
LOS by Move:	A	E	A	D	A	A	A	A	A	D	A	D
HCM2kAVGQ:	0	56	1	2	14	0	0	0	0	2	0	3

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4aLevel of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1262 Lake Merced / Acevedo

Cycle (sec): 100 Critical Vol./Cap.(X): 0.962  
 Loss Time (sec): 12 Average Delay (sec/veh): 43.3  
 Optimal Cycle: 149 Level Of Service: D

Street Name: Lake Merced Acevedo

North Bound		South Bound		East Bound		West Bound		
L	T	R	L	T	R	L	T	R
41	41	41	11	59	59	0	0	0
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
0	0	2	0	1	1	0	2	0

Control: Permitted Include Protected Include Split Phase Include

Rights: 41 41 41 11 59 59 0 0 0 20 20 20

Min. Green: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Y+R: 0 0 2 0 1 1 0 2 0 0 0 0 1

Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 1

Volume Module:

Base Vol:	0	1913	17	10	1588	0	0	0	0	7	0	15
Growth Adj:	1.12	1.14	1.11	1.09	1.09	1.10	1.11	1.08	1.09	1.10	1.12	1.00
Initial Bse:	0	2181	19	11	1731	0	0	0	0	8	0	15
Added Vol:	0	299	25	35	133	0	0	0	0	63	0	87
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	2480	44	46	1864	0	0	0	0	71	0	102
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	0	2530	45	47	1902	0	0	0	0	72	0	104
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	2530	45	47	1902	0	0	0	0	72	0	104
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	2530	45	47	1902	0	0	0	0	72	0	104

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.93	0.83	0.93	0.93	1.00	1.00	1.00	1.00	0.88	1.00	0.88
Lanes:	0.00	2.00	1.00	1.00	2.00	0.00	0.00	0.00	0.00	0.41	0.00	0.59
Final Sat.:	0	3538	1583	1769	3538	0	0	0	0	687	0	992

Capacity Analysis Module:

Vol/Sat:	0.00	0.72	0.03	0.03	0.54	0.00	0.00	0.00	0.00	0.10	0.00	0.10
Crit Moves:	0.65	0.65	0.65	0.10	0.79	0.00	0.00	0.00	0.00	0.13	0.13	0.13
Green/Cycle:	0.00	1.10	0.04	0.26	0.68	0.00	0.00	0.00	0.00	0.81	0.00	0.81
Volume/Cap:	0.00	0.70	0.00	0.45	0.61	0.00	0.00	0.00	0.00	0.68	0.00	0.68
Delay/Veh:	0.00	70.1	6.4	45.2	6.1	0.0	0.0	0.0	0.0	43.1	0.0	44.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.00	70.1	6.4	45.2	6.1	0.0	0.0	0.0	0.0	43.1	0.0	44.9
LOS by Move:	A	E	A	D	A	A	A	A	A	D	A	D
HCM2kAVGQ:	0	55	0	1	15	0	0	0	0	8	0	8

Note: Queue reported is the number of cars per lane.



Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1263 Lake Merced / Higuera  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.994  
Loss Time (sec): 12 Average Delay (sec/veh): 37.9  
Optimal Cycle: 180 Level Of Service: D

Street Name: Lake Merced Higuera  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Protected Split Phase Split Phase  
Rights: Include Include Include Include  
Min. Green: 41 41 11 59 59 0 0 0 20 20 20  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 0 0 1 0 0

Volume Module:  
Base Vol: 0 1690 1 5 1590 0 0 0 25 0 24  
Growth Adj: 1.12 1.14 1.11 1.09 1.09 1.10 1.11 1.08 1.09 1.10 1.10 1.12  
Initial Bse: 0 1921 1 5 1736 0 0 0 27 0 27  
Added Vol: 0 184 2 17 179 0 0 0 233 0 140  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2105 3 22 1915 0 0 0 260 0 167  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2148 3 23 1954 0 0 0 266 0 170  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2148 3 23 1954 0 0 0 266 0 170  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Final Volume: 0 2148 3 23 1954 0 0 0 266 0 170

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.83 0.93 0.93 1.00 1.00 1.00 0.90 1.00 0.90  
Lanes: 0.00 2.00 1.00 1.00 2.00 0.00 0.00 0.00 0.61 0.00 0.39  
Final Sat.: 0 3538 1583 1769 3538 0 0 0 1042 0 668

Capacity Analysis Module:  
Vol/Sat: 0.00 0.61 0.00 0.01 0.55 0.00 0.00 0.00 0.00 0.25 0.00 0.25  
Crit Moves: 0.00 0.61 0.00 0.01 0.55 0.00 0.00 0.00 0.00 0.25 0.00 0.25  
Green/Cycle: 0.63 0.63 0.63 0.10 0.75 0.75 0.00 0.00 0.00 0.17 0.17 0.17  
Volume/Cap: 0.00 0.96 0.00 0.13 0.74 0.00 0.00 0.00 0.00 1.50 0.00 1.50  
Delay/Veh: 0.0 20.9 3.4 42.5 1.9 0.0 0.0 0.0 0.0 283.4 0.0 283.4  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 20.9 3.4 42.5 1.9 0.0 0.0 0.0 0.0 283.4 0.0 283.4  
LOS by Move: A C A D A A A A A F A F  
HCM2kAvgQ: 0 29 0 1 3 0 0 0 0 33 0 33

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1264 Lake Merced / Gonzalez  
Cycle (sec): 100 Critical Vol./Cap.(X): 1.036  
Loss Time (sec): 12 Average Delay (sec/veh): 47.1  
Optimal Cycle: 180 Level Of Service: D

Street Name: Lake Merced Gonzalez  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Protected Protected Split Phase Split Phase  
Rights: Include Include Include Include  
Min. Green: 41 41 41 11 59 59 0 0 0 20 20 20  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 0 0 1 0 0 1

Volume Module:  
Base Vol: 0 1899 97 6 1609 0 0 0 39 0 9  
Growth Adj: 1.12 1.14 1.11 1.09 1.09 1.10 1.11 1.08 1.09 1.10 1.10 1.12  
Initial Bse: 0 2165 108 7 1754 0 0 0 43 0 10  
Added Vol: 0 136 145 21 391 0 0 0 360 0 51  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2301 253 28 2145 0 0 0 403 0 61  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2348 258 28 2189 0 0 0 411 0 62  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2348 258 28 2189 0 0 0 411 0 62  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Final Volume: 0 2348 258 28 2189 0 0 0 411 0 62

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.83 0.93 0.93 1.00 1.00 1.00 0.93 1.00 0.83  
Lanes: 0.00 2.00 1.00 1.00 2.00 0.00 0.00 0.00 0.61 0.00 0.39  
Final Sat.: 0 3538 1583 1769 3538 0 0 0 1769 0 1583

Capacity Analysis Module:  
Vol/Sat: 0.00 0.66 0.16 0.02 0.62 0.00 0.00 0.00 0.00 0.23 0.00 0.04  
Crit Moves: 0.00 0.66 0.16 0.02 0.62 0.00 0.00 0.00 0.00 0.23 0.00 0.04  
Green/Cycle: 0.63 0.63 0.63 0.10 0.75 0.75 0.00 0.00 0.00 0.17 0.17 0.17  
Volume/Cap: 0.00 1.05 0.26 0.16 0.82 0.00 0.00 0.00 0.00 1.37 0.00 0.23  
Delay/Veh: 0.0 53.5 8.8 43.1 11.3 0.0 0.0 0.0 0.0 226.6 0.0 37.9  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 53.5 8.8 43.1 11.3 0.0 0.0 0.0 0.0 226.6 0.0 37.9  
LOS by Move: A D A D A D A A A F A D  
HCM2kAvgQ: 0 44 3 1 25 0 0 0 0 28 0 2

Note: Queue reported is the number of cars per lane.

Tier 4a AM Thu Feb 4, 2010 15:00:53 Page 35-1

19th Ave CS  
Tier 4a

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1270 Lake Merced / Brotherhood

Cycle (sec): 110 Critical Vol./Cap. (X): 1.784  
 Loss Time (sec): 15 Average Delay (sec/veh): 122.0  
 Optimal Cycle: 180 Level Of Service: F

Street Name: Lake Merced Brotherhood  
 Approach: North Bound South Bound East Bound West Bound  
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Protected Protected Protected Protected Protected  
 Rights: Ovl Include Include Include Include Include Ovl  
 Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
 Y+R: 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0  
 Lanes: 0 0 2 0 1 2 0 1 0 0 0 0 0 0 0 0 1 0 0 0 2

Volume Module:

Base Vol:	0	416	209	1478	225	0	0	0	0	139	0	1483
Growth Adj:	1.13	1.14	1.29	1.26	1.09	1.11	1.29	1.44	1.26	1.11	1.12	1.13
Initial Bse:	0	473	269	1868	246	0	0	0	0	154	0	1674
Added Vol:	0	117	-18	477	274	0	0	0	0	-16	0	164
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	590	251	2345	520	0	0	0	0	138	0	1838
User Adj:	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	0	602	256	2393	0	0	0	0	0	141	0	1875
Reduc Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	602	256	2393	0	0	0	0	0	141	0	1875
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	602	256	2393	0	0	0	0	0	141	0	1875

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.93	0.83	0.90	1.00	1.00	1.00	1.00	1.00	0.93	1.00
Lanes:	0.00	2.00	1.00	2.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00
Final Sat:	0	3538	1583	3432	1900	0	0	0	0	1769	0

Capacity Analysis Module:

Vol/Sat:	0.00	0.17	0.16	0.70	0.00	0.00	0.00	0.00	0.00	0.08	0.00
Crit Moves:	0.00	0.17	0.16	0.70	0.00	0.00	0.00	0.00	0.00	0.08	0.00
Green/Cycle:	0.16	0.16	0.43	0.48	0.69	0.00	0.00	0.00	0.00	0.22	0.22
Volume/Cap:	0.00	1.04	0.38	1.45	0.00	0.00	0.00	0.00	0.00	0.36	0.00
Delay/Veh:	0.0	94.2	18.9	227.4	0.0	0.0	0.0	0.0	0.0	37.1	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	94.2	18.9	227.4	0.0	0.0	0.0	0.0	0.0	37.1	0.0
LOS by Move:	A	F	B	F	A	A	A	A	A	D	A
HCM2RAvgQ:	0	17	5	86	0	0	0	0	0	4	0

Note: Queue reported is the number of cars per lane.

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

**Tier 4A Conditions**  
**Weekday PM Peak Hour**



Tier 4a PM	Thu Feb 4, 2010 14:57:23	Page 2-1			
19th Ave CS					
Tier 4a					
Impact Analysis Report					
Level Of Service					
Intersection	Base Del/ LOS Veh C	V/ Veh C	Future Del/ LOS Veh C	V/ Veh C	Change in
#1010 Claremont / Taraval / Dewey /	A	7.1 0.653	A	7.4 0.672	+ 0.020 V/C
#1020 Santa Clara / Portola / Vicent	C	30.5 0.841	D	39.0 0.936	+ 8.525 D/V
#1030 Junipero Serra / Sloat / West	F	101.4 1.113	F	117.2 1.170	+15.817 D/V
#1040 Junipero Serra / Ocean / Euca1	D	39.7 0.820	E	70.2 1.063	+30.533 D/V
#1050 Junipero Serra / Winston / Mer	C	30.4 0.678	D	49.3 1.062	+18.865 D/V
#1060 Junipero Serra / Holloway	C	30.4 0.692	D	37.4 0.724	+ 7.049 D/V
#1070 Junipero Serra / 19th	E	65.4 1.026	F	102.0 1.081	+36.576 D/V
#1075 Junipero Serra / Chumasero	A	9.4 0.926	C	32.0 1.073	+22.659 D/V
#1080 Junipero Serra / I-280 NB On-R	F	129.3 1.294	F	151.8 1.400	+22.595 D/V
#1090 Junipero Serra / I-280 SB On-R	D	49.9 1.054	F	89.9 1.172	+40.016 D/V
#1100 19th / Taraval	B	19.4 0.839	C	24.0 0.883	+ 4.578 D/V
#1110 19th / Sloat	F	127.7 1.550	F	154.7 1.630	+26.999 D/V
#1120 19th / Ocean	F	146.9 1.568	F	180.5 1.633	+33.636 D/V
#1130 19th / Eucalyptus	E	69.7 1.079	F	86.4 1.180	+16.707 D/V
#1140 19th / Winston	F	97.7 1.325	F	207.7 1.699	+109.967 D/
#1150 19th / Buckingham	F	408.9 1.759	F	604.0 2.196	+195.131 D/
#1160 19th / Holloway	B	16.9 0.866	F	120.8 1.027	+103.936 D/
#1170 19th / Crespi	D	52.6 0.814	E	74.7 0.807	+22.076 D/V
#1181 Chumasero / Brotherhood	B	15.8 0.720	F	85.3 0.934	+69.466 D/V
#1182 Thomas More / brotherhood	D	44.8 0.462	C	21.9 0.572	-22.940 D/
#1190 Sunset / Taraval	D	49.8 0.843	F	125.6 0.960	+75.784 D/V
#1200 Sunset / Ocean	B	13.3 0.687	C	30.5 0.827	+17.163 D/V
#1210 Skyline / Sloat / 39th	D	27.0 0.908	D	29.4 0.925	+ 0.017 V/C
#1221 Skvline / Lake Merced (WBR)	C	17.4 0.416	C	17.5 0.417	+ 0.048 D/V

Tier 4a PM		Thu Feb 4, 2010 14:57:23		Page 2-2	
		19th Ave CS			
		Tier 4a			
</					

Level Of Service Computation Report  
FHWA Roundabout Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #1010 Claremont / Taraval / Dewey / Kensington  
\*\*\*\*\*

Average Delay (sec/veh): 7.4 Level Of Service: A  
\*\*\*\*\*

Street Name: Claremont Taraval / Dewey  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control:	Yield Sign	Yield Sign	Yield Sign	Yield Sign	Yield Sign
Lanes:	1	1	1	1	1

Volume Module:	17	24	239	50	63	5	10	259	55	324	338	31
Base Vol:	1.09	1.10	1.07	1.06	1.09	1.08	1.07	1.04	1.06	1.08	1.08	1.09
Growth Adj:	18	26	255	53	69	5	11	269	59	351	364	34
Initial Bse:	1	0	16	0	0	0	0	0	0	22	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	19	26	271	53	69	5	11	269	59	373	364	34
Initial Fut:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
User Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Adj:	20	27	277	54	70	6	11	275	60	381	371	34
PHF Volume:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	20	27	277	54	70	6	11	275	60	381	371	34
Initial Fut:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	20	27	277	54	70	6	11	275	60	381	371	34
Final Volume:	20	27	277	54	70	6	11	275	60	381	371	34

PCE Module:	20	27	277	54	70	6	11	275	60	381	371	34
AutoPCE:	0	0	0	0	0	0	0	0	0	0	0	0
TruckPCE:	0	0	0	0	0	0	0	0	0	0	0	0
CombopCE:	0	0	0	0	0	0	0	0	0	0	0	0
BicyclePCE:	0	0	0	0	0	0	0	0	0	0	0	0
AdjVolume:	20	27	277	54	70	6	11	275	60	381	371	34

Delay Module: >> Time Period: 0.25 hours <<	340	771	505	58
CircVolume:	1016	783	927	1169
MaxVolume:	0	0	0	0
PedVolume:	1016	783	927	1169
AdjMaxVol:	324	786	345	786
ApproachVol:	0.32	0.17	0.37	0.67
ApproachV/C:	5.2	5.5	6.2	9.2
ApproachDel:	A	A	A	A
ApproachLOS:	1.4	0.6	1.7	5.5

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #1020 Santa Clara / Portola / Vicente  
\*\*\*\*\*

Cycle (sec): 80 Critical Vol./Cap.(X): 0.936  
Loss Time (sec): 11 Average Delay (sec/veh): 39.0  
Optimal Cycle: 111 Level Of Service: D  
\*\*\*\*\*

Street Name: Santa Clara / Vicente Portola  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control:	Permitted	Permitted	Permitted	Permitted	Permitted
Rights:	23	23	23	23	23
Min. Green:	4.0	4.0	4.0	4.0	4.0
Y+R:	0	0	0	0	0
Lanes:	0	0	0	0	0

Volume Module:	22	273	85	86	191	48	48	1051	33	147	987	108
Base Vol:	1.03	1.00	1.03	1.07	1.03	1.07	1.03	1.10	1.07	1.07	1.10	1.03
Growth Adj:	23	273	88	92	198	51	50	1155	35	157	1087	112
Initial Bse:	0	0	0	0	0	0	0	0	0	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	23	273	88	107	198	55	50	1302	35	157	1333	112
Initial Fut:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
User Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Adj:	23	279	90	109	202	56	51	1329	36	160	1360	114
PHF Volume:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	23	279	90	109	202	56	51	1329	36	160	1360	114
Initial Fut:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	23	279	90	109	202	56	51	1329	36	160	1360	114
Final Volume:	23	279	90	109	202	56	51	1329	36	160	1360	114

Saturation Flow Module:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
AdjVolume:	0.92	0.92	0.92	0.59	0.59	0.93	0.93	0.93	0.93	0.93	0.92	0.92
Adjustment:	0.06	0.71	0.23	0.30	0.55	0.15	1.00	1.95	0.05	1.00	1.85	0.15
Lanes:	104	1246	401	331	612	171	1769	3431	93	1769	3225	270
Final Sat:	0.22	0.22	0.22	0.33	0.33	0.33	0.03	0.39	0.39	0.09	0.42	0.42
Capacity Analysis Module:	0.30	0.30	0.30	0.30	0.30	0.30	0.11	0.45	0.45	0.11	0.45	0.45
Vol/Sat:	0.75	0.75	0.75	1.10	1.10	1.10	0.25	0.86	0.86	0.80	0.94	0.94
Crit Moves:	34.5	34.5	34.5	106.1	106.1	106.1	35.5	26.1	26.1	62.9	32.9	32.9
Green/Cycle:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Volume/Cap:	34.5	34.5	34.5	106.1	106.1	106.1	35.5	26.1	26.1	62.9	32.9	32.9
Delay/Veh:	C	C	C	F	F	F	D	C	C	E	C	C
AdjDel/Veh:	10	10	10	17	17	17	19	19	19	6	24	24
LOS by Move:	10	10	10	17	17	17	19	19	19	6	24	24
HCM2kAvgQ:	10	10	10	17	17	17	19	19	19	6	24	24

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4a

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1030 Junipero Serra / Sloat / West Portal / St. Francis  
Cycle (sec): 105 Critical Vol./Cap.(X): 1.170  
Loss Time (sec): 16 Average Delay (sec/veh): 117.2  
Optimal Cycle: 180 Level Of Service: F  
\*\*\*\*\*

Street Name: Junipero Serra / West Portal Sloat / St. Francis  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Protected Permitted Split Phase  
Rights: Include Include Include  
Min. Green: 16 53 32 32 32 15 15 15 20 20 20  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 3 0 1 0 0 0 2 1 0 3 0 1 0 1 0 1 0

Volume Module:  
Base Vol: 1027 1005 60 0 1045 261 852 420 471 20 405 10  
Growth Adj: 1.13 1.12 1.10 1.13 1.18 1.16 1.10 1.08 1.13 1.16 1.15 1.13  
Initial Bse: 1162 1121 66 0 1232 303 937 455 533 23 464 11  
Added Vol: 33 120 0 0 209 0 2 0 29 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 1195 1241 66 0 1441 303 939 455 562 23 464 11  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 1219 1266 67 0 1470 310 958 464 0 24 474 12  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 1219 1266 67 0 1470 310 958 464 0 24 474 12  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 1219 1266 67 0 1470 310 958 464 0 24 474 12

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.89 0.92 0.92 1.00 0.88 0.88 0.89 0.97 1.00 0.93 0.93  
Lanes: 3.00 1.90 0.10 0.00 2.48 0.52 3.00 1.00 1.00 0.09 1.86 0.05  
Final Sat.: 5096 3302 176 0 4130 870 5096 1843 1900 164 3276 80

Capacity Analysis Module:  
Vol/Sat: 0.24 0.38 0.38 0.00 0.36 0.36 0.19 0.25 0.00 0.14 0.14  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.17 0.48 0.48 0.00 0.30 0.30 0.18 0.18 0.00 0.19 0.19  
Volume/Cap: 1.39 0.80 0.80 0.00 1.17 1.17 1.04 1.39 0.00 0.76 0.76  
Delay/Veh: 227.4 23.0 23.0 0.0 119 118.7 83.6 238 0.0 48.1 48.1  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 227.4 23.0 23.0 0.0 119 118.7 83.6 238 0.0 48.1 48.1  
LOS by Move: F C C A F F F A D D  
HCM2kAVGQ: 28 17 17 0 36 36 17 33 0 10 10

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4a

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1040 Junipero Serra / Ocean / Eucalyptus  
Cycle (sec): 100 Critical Vol./Cap.(X): 1.063  
Loss Time (sec): 14 Average Delay (sec/veh): 70.2  
Optimal Cycle: 180 Level Of Service: E  
\*\*\*\*\*

Street Name: Junipero Serra Ocean / Eucalyptus  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Protected Permitted Permitted  
Rights: Include Include Ovl  
Min. Green: 11 43 43 16 48 48 27 27 27 27 27 27  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 1 0 2 1 0 2 0 2 1 0 1 0 1 0 1 0 1

Volume Module:  
Base Vol: 176 1567 35 356 1065 96 140 356 58 77 332 333  
Growth Adj: 1.13 1.12 1.10 1.13 1.18 1.16 1.10 1.08 1.13 1.16 1.15 1.13  
Initial Bse: 199 1748 38 403 1255 112 154 386 66 90 381 377  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 199 1855 81 438 1449 121 166 477 66 115 447 411  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 203 1893 83 446 1479 123 169 486 67 117 456 419  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 203 1893 83 446 1479 123 169 486 67 117 456 419  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 203 1893 83 446 1479 123 169 486 67 117 456 419

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.92 0.97 0.88 0.90 0.88 0.88 0.63 0.63 0.83 0.63 0.63 0.83  
Lanes: 1.00 2.86 0.14 2.00 2.77 0.23 0.52 1.48 1.00 0.20 0.80 1.00  
Final Sat.: 1751 5249 231 3432 4636 386 616 1770 1583 244 951 1583

Capacity Analysis Module:  
Vol/Sat: 0.12 0.36 0.36 0.13 0.32 0.32 0.27 0.27 0.04 0.48 0.48 0.26  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.11 0.43 0.43 0.16 0.48 0.48 0.27 0.27 0.38 0.27 0.27 0.43  
Volume/Cap: 1.05 0.84 0.84 0.81 0.66 0.66 1.02 1.02 0.11 1.77 1.77 0.62  
Delay/Veh: 124.5 25.6 25.6 53.0 17.3 17.3 76.5 76.5 20.4 397.3 397.3 26.2  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 124.5 25.6 25.6 53.0 17.3 17.3 76.5 76.5 20.4 397.3 397.3 26.2  
LOS by Move: F C C D B B E C F C  
HCM2kAVGQ: 8 18 17 6 10 10 17 17 1 49 49 11

Note: Queue reported is the number of cars per lane.



Tier 4a PM	Thu Feb 4, 2010 14:57:23	Page 7-1
19th Ave CS Tier 4a		
Level Of Service Computation Report 2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1050 Junipero Serra / Winston / Mercedes		
Cycle (sec):	100	Critical Vol./Cap.(X): 1.062
Loss Time (sec):	14	Average Delay (sec/veh): 49.3
Optimal Cycle:	180	Level Of Service: D
Street Name: Junipero Serra Winston / Mercedes		
Approach:	North Bound South Bound West Bound	
Movement:	L - T - R L - T - R L - T - R	
Control:	Protected Protected Protected	Permitted
Rights:	WideBypass Include Include	Include
Min. Green:	19 40 40 19 40 40 27 27 27 27 27 27	
Y+R:	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	
Lanes:	1 0 2 1 0 1 0 2 1 0 1 0 1 0 1 0 1	
Volume Module:		
Base Vol:	224 1516 52 85 1130 117 169 152 81 74 103 36	
Growth Adj:	1.05 1.12 1.11 1.15 1.18 1.08 1.11 1.11 1.15 1.08 1.00 1.05	
Initial Bse:	236 1691 58 97 1332 127 188 169 93 80 103 38	
Added Vol:	73 15 2 1 62 156 135 157 48 1 133 0	
PasserByVol:	0 0 0 0 0 0 0 0 0 0 0 0	
Initial Fut:	309 1706 60 98 1394 283 323 326 141 81 236 38	
User Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
PHF Adj:	0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98	
PHF Volume:	315 1741 61 100 1422 289 330 333 144 83 241 39	
Reduced Vol:	0 0 0 0 0 0 0 0 0 0 0 0	
Reduced Vol:	315 1741 61 100 1422 289 330 333 144 83 241 39	
PCE Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
MLF Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
FinalVolume:	315 1741 61 100 1422 289 330 333 144 83 241 39	
Saturation Flow Module:		
Sat/Lane:	1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900	
Adjustment:	0.93 0.89 0.89 0.93 0.87 0.87 0.44 0.98 0.83 0.30 0.98 0.83	
Lanes:	1.00 2.90 0.10 1.00 2.49 0.51 1.00 1.00 1.00 1.00 1.00 1.00	
Final Sat.:	1769 4886 172 1769 4120 836 845 1862 1583 579 1862 1583	
Capacity Analysis Module:		
Vol/Sat:	0.18 0.36 0.36 0.06 0.35 0.35 0.39 0.18 0.09 0.14 0.13 0.02	
Crit Moves:	***	
Green/Cycle:	0.19 0.40 0.40 0.19 0.40 0.40 0.27 0.27 0.27 0.27 0.27 0.27	
Volume/Cap:	0.94 0.89 0.89 0.30 0.86 0.86 1.45 0.66 0.34 0.53 0.48 0.09	
Delay/Veh:	75.4 31.4 31.4 37.0 29.9 29.9 259.9 39.2 31.4 43.4 33.8 27.7	
User DelAdj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
AdjDel/Veh:	75.4 31.4 31.4 37.0 29.9 29.9 259.9 39.2 31.4 43.4 33.8 27.7	
LOS by Move:	E C D C F D C D C D C	
HCW2kAvgQ:	10 18 18 2 18 22 8 3 3 3 7 1	
Note: Queue reported is the number of cars per lane.		

Tier 4a PM	Thu Feb 4, 2010 14:57:23	Page 8-1
19th Ave CS Tier 4a		
Level Of Service Computation Report 2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1060 Junipero Serra / Holloway		
Cycle (sec):	100	Critical Vol./Cap.(X): 0.724
Loss Time (sec):	14	Average Delay (sec/veh): 37.4
Optimal Cycle:	100	Level Of Service: D
Street Name: Junipero Serra Holloway		
Approach:	North Bound South Bound East Bound West Bound	
Movement:	L - T - R L - T - R L - T - R L - T - R	
Control:	Protected Protected Protected	Permitted
Rights:	Include Include Include	Include
Min. Green:	19 39 39 19 39 39 28 28 28 28 28 28	
Y+R:	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	
Lanes:	1 0 2 1 0 1 0 2 1 0 1 0 1 0 1 0 1	
Volume Module:		
Base Vol:	183 1398 101 176 1001 104 117 140 23 143 96 107	
Growth Adj:	1.11 1.12 1.08 1.11 1.18 1.14 1.08 1.04 1.11 1.14 1.10 1.11	
Initial Bse:	202 1559 109 195 1180 118 126 145 25 163 105 118	
Added Vol:	151 60 1 31 39 41 7 -21 0 1 0 23	
PasserByVol:	0 0 0 0 0 0 0 0 0 0 0 0	
Initial Fut:	353 1619 110 226 1219 159 133 124 25 164 105 141	
User Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
PHF Adj:	0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98	
PHF Volume:	360 1652 112 230 1244 162 136 126 26 167 107 144	
Reduced Vol:	0 0 0 0 0 0 0 0 0 0 0 0	
Reduced Vol:	360 1652 112 230 1244 162 136 126 26 167 107 144	
PCE Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
MLF Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
FinalVolume:	360 1652 112 230 1244 162 136 126 26 167 107 144	
Saturation Flow Module:		
Sat/Lane:	1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900	
Adjustment:	0.93 0.88 0.88 0.93 0.88 0.88 0.67 0.98 0.83 0.64 0.98 0.83	
Lanes:	1.00 2.81 0.19 1.00 2.65 0.35 1.00 1.00 1.00 1.00 1.00 1.00	
Final Sat.:	1769 4718 319 1769 4419 577 1275 1862 1583 1218 1862 1583	
Capacity Analysis Module:		
Vol/Sat:	0.20 0.35 0.35 0.13 0.28 0.28 0.11 0.07 0.02 0.14 0.06 0.09	
Crit Moves:	***	
Green/Cycle:	0.19 0.39 0.39 0.19 0.39 0.39 0.28 0.28 0.28 0.28 0.28 0.28	
Volume/Cap:	1.07 0.90 0.90 0.69 0.72 0.72 0.38 0.24 0.06 0.49 0.21 0.33	
Delay/Veh:	110.2 32.9 32.9 48.6 25.8 25.8 32.0 28.9 26.6 35.0 28.4 30.5	
User DelAdj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
AdjDel/Veh:	110.2 32.9 32.9 48.6 25.8 25.8 32.0 28.9 26.6 35.0 28.4 30.5	
LOS by Move:	F C C C C C C C C C C C	
HCW2kAvgQ:	14 17 17 6 12 12 4 3 1 5 3 4	
Note: Queue reported is the number of cars per lane.		

19th Ave CS  
Tier 4aLevel Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\* Intersection #1070 Junipero Serra / 19th \*\*\*\*\*

Cycle (sec): 120 Critical Vol./Cap.(X): 1.081  
Loss Time (sec): 0 Average Delay (sec/veh): 102.0  
Optimal Cycle: 180 Level Of Service: F

\*\*\*\*\*

Street Name: Junipero Serra 19th

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Split Phase Split Phase Split Phase Permitted Permitted

Rights: Ignore Ignore Ovl Include

Min. Green: 54 54 20 20 20 9 9 9 9 9 9 9

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 3 0 1 0 0 0 4 0 1 0 0 1 0 3 0 0 0 1 0

\*\*\*\*\*

Volume Module:

Base Vol: 2410 1660 25 0 1178 17 0 123 3060 0 47 50

Growth Adj: 1.09 1.12 1.06 1.09 1.12 1.06 1.01 1.09 1.12 1.06 1.09

Initial Bse: 2621 1851 27 0 1388 19 0 124 3346 0 50 54

Added Vol: 98 186 2 0 41 0 0 37 199 0 1 26

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 2719 2037 29 0 1429 19 0 161 3545 0 51 80

User Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.00 0.98 0.98 0.00 0.98 0.98 0.98 0.98 0.98

PHF Volume: 2775 2079 0 0 1458 0 0 164 3617 0 52 82

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 2775 2079 0 0 1458 0 0 164 3617 0 52 82

PCE Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 2775 2079 0 0 1458 0 0 164 3617 0 52 82

\*\*\*\*\*

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 0.90 0.93 0.95 1.00 0.89 1.00 1.00 0.98 0.73 1.00 0.90 0.90

Lanes: 3.00 2.00 0.00 0.00 4.00 1.00 0.00 1.00 3.00 0.00 0.39 0.61

Final Sat: 5147 3538 0 0 6778 1900 0 1862 4178 0 661 1046

\*\*\*\*\*

Capacity Analysis Module:

Vol/Sat: 0.54 0.59 0.00 0.00 0.22 0.00 0.00 0.09 0.87 0.00 0.08 0.08

Crit Moves: \*\*\*\*

Green/Cycle: 0.50 0.50 0.50 0.20 0.20 0.20 0.14 0.14 0.68 0.14 0.14 0.14

Volume/Cap: 1.08 1.18 0.00 0.00 1.08 0.00 0.00 0.63 1.27 0.00 0.56 0.56

Delay/Veh: 66.0 108 0.0 0.0 95.7 0.0 0.0 59.7 132.2 0.0 57.3 57.3

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 66.0 108 0.0 0.0 95.7 0.0 0.0 59.7 132.2 0.0 57.3 57.3

LOS by Move: E F A A F A A E F A E E

HCM2RAvgQ: 46 61 0 0 20 0 0 7 87 0 5 5

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

19th Ave CS  
Tier 4aLevel Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\* Intersection #1075 Junipero Serra / Chumaseo \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 1.073  
Loss Time (sec): 10 Average Delay (sec/veh): 32.0  
Optimal Cycle: 180 Level Of Service: C

\*\*\*\*\*

Street Name: Junipero Serra Chumaseo

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Split Phase Split Phase

Rights: Include Include Ovl Include

Min. Green: 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 4 0 0 0 0 3 1 0 0 0 0 1 0 0 0 0

\*\*\*\*\*

Volume Module:

Base Vol: 120 4095 0 0 4238 31 0 0 125 0 0 0

Growth Adj: 1.09 1.12 1.06 1.09 1.18 1.12 1.00 1.00 1.05 1.00 1.00 1.00

Initial Bse: 131 4567 0 0 4994 35 0 0 131 0 0 0

Added Vol: 167 286 0 0 234 5 0 0 131 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 298 4853 0 0 5228 40 0 0 262 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 304 4952 0 0 5335 41 0 0 268 0 0 0

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 304 4952 0 0 5335 41 0 0 268 0 0 0

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 304 4952 0 0 5335 41 0 0 268 0 0 0

\*\*\*\*\*

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 0.93 0.89 1.00 1.00 0.89 0.89 1.00 1.00 0.85 1.00 1.00 1.00

Lanes: 1.00 4.00 0.00 0.00 3.97 0.03 0.00 0.00 1.00 0.00 0.00 0.00

Final Sat: 1769 6778 0 0 6720 51 0 0 1611 0 0 0

\*\*\*\*\*

Capacity Analysis Module:

Vol/Sat: 0.17 0.73 0.00 0.00 0.79 0.79 0.00 0.00 0.17 0.00 0.00 0.00

Crit Moves: \*\*\*\*

Green/Cycle: 0.16 0.90 0.00 0.00 0.74 0.74 0.00 0.00 0.16 0.00 0.00 0.00

Volume/Cap: 1.07 0.81 0.00 0.00 1.07 1.07 0.00 0.00 1.04 0.00 0.00 0.00

Delay/Veh: 116.2 2.7 0.0 0.0 50.4 50.4 0.0 0.0 108.5 0.0 0.0 0.0

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 116.2 2.7 0.0 0.0 50.4 50.4 0.0 0.0 108.5 0.0 0.0 0.0

LOS by Move: F A A A D A A F A A A

HCM2RAvgQ: 16 18 0 0 55 55 0 0 14 0 0 0

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

19th Ave CS  
Tier 4a

## Level of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #1080 Junipero Serra / I-280 NB On-Ramp / John Daly  
Cycle (sec): 125 Critical Vol./Cap.(X): 1.400  
Loss Time (sec): 12 Average Delay (sec/veh): 151.8  
Optimal Cycle: 180 Level Of Service: F  
\*\*\*\*\*Street Name: Junipero Serra / I-280 NB On-Ramp John Daly  
Approach: North Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - RControl: Split Phase Split Phase Split Phase  
Rights: Ovl Include Ovl  
Min. Green: 6 6 6 31 31 31 6 6 6  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 2 0 1 1 1 0 0 1 2 1 0 1 1 2 0 1

## Volume Module:

Base Vol: 621 381 328 210 383 857 667 495 160 122 895 232  
Growth Adj: 1.19 1.13 1.11 1.28 1.47 1.36 1.11 1.09 1.28 1.36 1.25 1.19  
Initial Bse: 739 429 363 268 562 1167 738 537 204 166 1122 276  
Added Vol: 283 55 0 0 0 0 0 -1 18 187 0 0 16  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 1022 484 363 268 562 1167 737 555 391 166 1122 292  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 1043 494 370 274 574 1190 752 567 399 169 1145 298  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 1043 494 370 274 574 1190 752 567 399 169 1145 298  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Final Volume: 1043 494 370 274 574 1190 752 567 399 169 1145 298

## Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.90 0.87 0.87 0.93 0.88 0.88 0.85 0.88 0.88 0.89 0.89 0.83  
Lanes: 2.00 1.71 1.29 1.00 0.65 1.35 2.22 1.63 1.15 1.00 3.00 1.00  
Final Sat: 3432 2840 2128 1769 1089 2259 3608 2720 1916 1684 5053 1583

## Capacity Analysis Module:

Vol/Sat: 0.30 0.17 0.17 0.15 0.53 0.53 0.21 0.21 0.21 0.10 0.23 0.19  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.19 0.19 0.33 0.33 0.33 0.57 0.25 0.25 0.25 0.14 0.14 0.47  
Volume/Cap: 1.61 0.92 0.53 0.47 1.61 0.92 0.84 0.84 0.84 0.72 1.61 0.40  
Delay/Veh: 333.3 64.1 34.4 34.1 322 31.3 47.9 47.9 47.9 52.7 335 22.2  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 333.3 64.1 34.4 34.1 322 31.3 47.9 47.9 47.9 52.7 335 22.2  
LOS by Move: F E C F C D D D D F C  
HCM2kAvqQ: 47 15 10 8 75 34 12 12 12 8 37 7  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4a

## Level of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #1090 Junipero Serra / I-280 SB On-Ramp / John Daly  
Cycle (sec): 120 Critical Vol./Cap.(X): 1.172  
Loss Time (sec): 8 Average Delay (sec/veh): 89.9  
Optimal Cycle: 180 Level Of Service: F  
\*\*\*\*\*Street Name: Junipero Serra / I-280 SB On-Ramp John Daly  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - RControl: Split Phase Split Phase Split Phase  
Rights: Ovl Include Include  
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 0 0 2 0 0 0 0 0 2 0 2 0 0 0

## Volume Module:

Base Vol: 0 0 350 0 0 0 0 0 0 972 427 722 1966 0  
Growth Adj: 1.05 1.00 1.04 1.32 1.55 1.33 1.04 1.09 1.32 1.33 1.10 1.05  
Initial Bse: 0 0 365 0 0 0 0 0 1058 563 958 2172 0  
Added Vol: 0 0 34 0 0 0 0 0 171 36 0 283 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 0 399 0 0 0 0 0 1229 599 958 2455 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 0 408 0 0 0 0 0 1254 611 977 2505 0  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 0 408 0 0 0 0 0 1254 611 977 2505 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Final Volume: 0 0 408 0 0 0 0 0 1254 611 977 2505 0

## Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 1.00 0.73 1.00 1.00 1.00 1.00 0.85 0.85 0.90 0.93 1.00  
Lanes: 0.00 0.00 2.00 0.00 0.00 0.00 0.00 2.02 0.98 2.00 2.00 0.00  
Final Sat: 0 0 2786 0 0 0 0 3250 1584 3432 3538 0

## Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.15 0.00 0.00 0.00 0.00 0.39 0.28 0.71 0.00  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.00 0.60 0.00 0.00 0.00 0.00 0.33 0.33 0.60 0.60  
Volume/Cap: 0.00 0.00 0.24 0.00 0.00 0.00 0.00 1.17 1.17 0.47 1.17  
Delay/Veh: 0.0 0.0 11.1 0.0 0.0 0.0 0.0 125 124.8 13.3 107 0.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 0.0 11.1 0.0 0.0 0.0 0.0 125 124.8 13.3 107 0.0  
LOS by Move: A A A A A A F F F A  
HCM2kAvqQ: 0 0 4 0 0 0 0 40 9 69 0  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.



Tier 4a PM	Thu Feb 4, 2010 14:57:24												Page 13-1		
19th Ave CS															
Tier 4a															
Level Of Service Computation Report															
2000 HCM Operations Method (Future Volume Alternative)															
Intersection #100 19th / Taraval															
*****															
Cycle (sec):	100	Critical Vol./Cap.(X):										0.883			
Loss Time (sec):	10	Average Delay (sec/veh):										24.0			
Optimal Cycle:	99	Level Of Service:										C			
*****															
Street Name:	19th Taraval														
Approach:	North Bound			South Bound			East Bound			West Bound					
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Permitted			Permitted			Permitted			Permitted					
Rights:	Include			Include			Include			Include					
Min. Green:	66	66	66	66	66	66	66	66	23	23	23	23	23	23	23
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	2	1	0	0	0	2	1	0	0	1	0	1	0
*****															
Volume Module:	*****														
Base Vol:	0	2131	104	0	2591	31	3	331	84	22	336	51	*****		
Growth Adj:	1.06	1.12	1.06	1.09	1.18	1.09	1.06	1.00	1.09	1.09	1.00	1.06	*****		
Initial Bse:	0	2377	110	0	3053	34	3	331	91	24	336	54	*****		
Added Vol:	0	201	2	0	202	0	0	0	0	0	0	0	*****		
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0	*****		
Initial Fut:	0	2578	112	0	3255	34	3	331	91	24	336	54	*****		
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	*****		
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	*****		
PHF Volume:	0	2630	114	0	3322	34	3	338	93	24	343	55	*****		
Reduc Vol:	0	0	0	0	0	0	0	0	0	0	0	0	*****		
Reduced Vol:	0	2630	114	0	3322	34	3	338	93	24	343	55	*****		
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	*****		
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	*****		
FinalVolume:	0	2630	114	0	3322	34	3	338	93	24	343	55	*****		
*****															
Saturation Flow Module:	*****														
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	*****		
Adjustment:	1.00	0.89	0.89	1.00	0.89	0.89	0.86	0.86	0.86	0.86	0.83	0.83	*****		
Lanes:	0.00	2.88	0.12	0.00	2.97	0.03	0.01	1.56	0.43	0.12	1.62	0.26	*****		
Final Sat:	0	4842	210	0	5026	52	24	2538	701	182	2562	411	*****		
*****															
Capacity Analysis Module:	*****														
Vol/Sat:	0.00	0.54	0.54	0.00	0.66	0.66	0.13	0.13	0.13	0.13	0.13	0.13	*****		
Crit Moves:	0	24	24	0	45	45	7	7	7	7	7	7	*****		
Green/Cycle:	0.00	0.67	0.67	0.00	0.67	0.67	0.23	0.23	0.23	0.23	0.23	0.23	*****		
Volume/Cap:	0.00	0.81	0.81	0.00	0.99	0.99	0.58	0.58	0.58	0.58	0.58	0.58	*****		
Delay/Veh:	0.0	14.1	14.1	0.0	28.6	28.6	37.4	37.4	37.4	37.6	37.6	37.6	*****		
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	*****		
AdjDel/Veh:	0.0	14.1	14.1	0.0	28.6	28.6	37.4	37.4	37.4	37.6	37.6	37.6	*****		
LOS by Move:	A	B	B	A	C	C	D	D	D	D	D	D	*****		
HCM2kAvgQ:	0	24	24	0	45	45	7	7	7	7	7	7	*****		
*****															
Note: Queue reported is the number of cars per lane.															

Tier 4a PM	Thu Feb 4, 2010 14:57:24	Page 14-1													
19th Ave CS															
Tier 4a															
Level of Service Computation Report															
2000 HCM Operations Method (Future Volume Alternative)															
Intersection #1110 19th / Sloat															
*****															
Cycle (sec):	100	Critical Vol./Cap.(X):										1.630			
Loss Time (sec):	9	Average Delay (sec/veh):										154.7			
Optimal Cycle:	180	Level Of Service:										F			
*****															
Street Name:	19th Sloat														
Approach:	North Bound			South Bound			East Bound			West Bound					
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Permitted			Protected			Permit+Prot			Permitted					
Rights:	Include			Include			Include			Include					
Min. Green:	0	43	43	11	58	58	4	33	33	24	24	24	24		
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Lanes:	0	0	2	1	0	1	0	1	1	1	0	0	3	0	1
*****															
Volume Module:															
Base Vol:	0	2446	66	235	2609	321	185	1440	74	0	870	497			
Growth Adj:	1.13	1.12	1.10	1.13	1.18	1.16	1.10	1.08	1.13	1.16	1.15	1.13			
Initial Bse:	0	2728	73	266	3075	373	203	1560	84	0	998	562			
Added Vol:	0	164	2	16	170	18	22	13	0	0	13	47			
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0			
Initial Fut:	0	2892	75	282	3245	391	225	1573	84	0	1011	609			
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98			
PHF Volume:	0	2951	76	287	3311	399	230	1605	85	0	1031	622			
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0			
Reduced Vol:	0	2951	76	287	3311	399	230	1605	85	0	1031	622			
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
FinalVolume:	0	2951	76	287	3311	399	230	1605	85	0	1031	622			
*****															
Saturation Flow Module:															
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Adjustment:	1.00	0.89	0.89	0.93	0.88	0.88	0.41	0.88	0.88	1.00	0.89	0.83			
Lanes:	0.00	2.92	0.08	1.00	2.68	0.32	1.00	2.85	0.15	0.00	3.00	1.00			
Final Sat:	0	4936	127	1769	4464	538	782	4764	253	0	5083	1583			
*****															
Capacity Analysis Module:															
Vol/Sat:	0.00	0.60	0.60	0.16	0.74	0.74	0.29	0.34	0.34	0.00	0.20	0.39			
Crit Moves:	0	70	70	22	87	87	9	22	22	0	12	44			
Green/Cycle:	0.00	0.43	0.43	0.11	0.54	0.54	0.37	0.37	0.37	0.00	0.27	0.27			
Volume/Cap:	0.00	1.39	1.39	1.44	1.37	1.37	0.79	0.92	0.92	0.00	0.75	1.44			
Delay/Veh:	0.0	203	203.1	269.9	183	183.5	42.5	38.0	38.0	0.0	36.9	248.7			
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
AdjDel/Veh:	0.0	203	203.1	269.9	183	183.5	42.5	38.0	38.0	0.0	36.9	248.7			
LOS by Move:	A	F	F	F	F	F	D	D	D	A	D	F			
HCM2kVgQ:	0	70	70	22	87	87	9	22	22	0	12	44			
*****															
Note: Queue reported is the number of cars per lane.															

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1120 19th / Ocean  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 1.633  
Loss Time (sec): 9 Average Delay (sec/veh): 180.5  
Optimal Cycle: 180 Level Of Service: F  
\*\*\*\*\*

Street Name: 19th Ocean  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 64 64 64 64 26 26 26 26  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 0 1 0 0 1 0 0 0 1 0 0

Volume Module:  
Base Vol: 0 2340 47 0 2579 164 64 293 25 25 271 127  
Growth Adj: 1.13 1.12 1.10 1.13 1.18 1.16 1.10 1.08 1.13 1.16 1.15 1.13  
Initial Bse: 0 2610 52 0 3039 191 70 317 28 29 311 144  
Added Vol: 0 166 0 0 170 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2776 52 0 3209 191 70 317 28 29 311 144  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2832 53 0 3275 195 72 324 29 30 317 147  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2832 53 0 3275 195 72 324 29 30 317 147  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2832 53 0 3275 195 72 324 29 30 317 147

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.44 0.89 1.00 0.88 0.88 0.89 0.97 0.97 0.73 0.73 0.73  
Lanes: 0.00 2.97 0.03 0.00 2.83 0.17 1.00 0.92 0.08 0.06 0.64 0.30  
Final Sat.: 0 2511 47 0 4760 283 1687 1689 150 83 886 409

Capacity Analysis Module:  
Vol/Sat: 0.00 1.13 1.13 0.00 0.69 0.69 0.04 0.19 0.19 0.36 0.36 0.36  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.64 0.64 0.64 0.64 0.27 0.27 0.27 0.27 0.27 0.27 0.27  
Volume/Cap: 0.00 1.76 1.76 0.00 1.08 1.08 0.16 0.72 0.72 1.35 1.35 1.35  
Delay/Veh: 0.0 354 354.2 0.0 48.9 48.9 29.0 42.4 42.4 211.8 212 211.8  
User Delay: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 354 354.2 0.0 48.9 48.9 29.0 42.4 42.4 211.8 212 211.8  
LOS by Move: A F A D A D C D D F F F  
HCM2kAvgQ: 0 84 172 0 48 48 2 11 11 33 33 33

Note: Queue reported is the number of cars per lane.

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1130 19th / Eucalyptus  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 1.180  
Loss Time (sec): 9 Average Delay (sec/veh): 86.4  
Optimal Cycle: 180 Level Of Service: F  
\*\*\*\*\*

Street Name: 19th Eucalyptus  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 66 66 66 66 25 25 25 25  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 0 2 1 0 1 0 1 0 0 0 1 0 0

Volume Module:  
Base Vol: 0 2277 26 0 2555 114 170 169 54 9 167 17  
Growth Adj: 1.13 1.12 1.10 1.13 1.18 1.16 1.10 1.08 1.13 1.16 1.15 1.13  
Initial Bse: 0 2540 29 0 3011 133 187 183 61 10 192 19  
Added Vol: 0 121 18 0 137 33 45 84 0 13 62 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2661 47 0 3148 166 232 267 61 23 254 19  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2715 48 0 3212 169 237 273 62 24 259 20  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2715 48 0 3212 169 237 273 62 24 259 20  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2715 48 0 3212 169 237 273 62 24 259 20

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.53 0.89 1.00 0.89 0.89 0.64 0.64 0.64 0.93 0.93 0.93  
Lanes: 0.00 2.97 0.03 0.00 2.85 0.15 1.24 1.43 0.33 0.08 0.86 0.06  
Final Sat.: 0 3009 53 0 4795 252 1511 1741 398 139 1505 114

Capacity Analysis Module:  
Vol/Sat: 0.00 0.90 0.90 0.00 0.67 0.67 0.16 0.16 0.16 0.17 0.17 0.17  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.66 0.66 0.66 0.66 0.26 0.26 0.26 0.26 0.26 0.26 0.26  
Volume/Cap: 0.00 1.37 1.37 0.00 1.01 1.01 0.61 0.61 0.61 0.67 0.67  
Delay/Veh: 0.0 175 175.3 0.0 26.3 26.3 35.9 35.9 35.9 41.4 41.4 41.4  
User Delay: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 175 175.3 0.0 26.3 26.3 35.9 35.9 35.9 41.4 41.4 41.4  
LOS by Move: A F A C C D D D  
HCM2kAvgQ: 0 65 106 0 40 40 6 6 6 9 9 9

Note: Queue reported is the number of cars per lane.





Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1160 19th / Holloway  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 1.027  
Loss Time (sec): 0 Average Delay (sec/veh): 120.8  
Optimal Cycle: 180 Level of Service: F  
\*\*\*\*\*

Street Name:		19th				Holloway			
Approach:		North Bound		South Bound		East Bound		West Bound	
Movement:		L	T - R	L	T - R	L	T - R	L	T - R
Control:		Permitted		Permitted		Permitted		Permitted	
Rights:		Include		Include		Include		Include	
Min. Green:		0	59	0	59	32	32	32	32
Y+R:		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:		0	0	2	1	0	1	0	1
		0		3		0		0	

Volume Module:											
Base Vol:		0	2489	143	0	3047	145	88	167	88	45
Growth Adj:		1.23	1.12	1.15	1.18	1.18	1.18	1.15	1.19	1.18	1.23
Initial Bse:		0	2776	165	0	3591	184	101	199	104	57
Added Vol:		0	47	-35	0	165	66	60	22	54	73
PasserByVol:		0	0	0	0	0	0	0	0	0	0
Initial Fut:		0	2823	130	0	3756	250	161	221	158	130
User Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:		0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:		0	2881	132	0	3833	255	165	225	161	133
Reduced Vol:		0	0	0	0	0	0	0	0	0	0
Reduced Vol:		0	2881	132	0	3833	255	165	225	161	133
PCE Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:		0	2881	132	0	3833	255	165	225	161	133

Saturation Flow Module:		1900		1900		1900		1900		1900	
Sat/Lane:		1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:		1.00	0.93	0.89	1.00	0.94	0.83	0.49	0.49	0.49	0.61
Lanes:		0.00	2.86	0.14	0.00	3.00	1.00	0.60	0.82	0.58	0.37
Final Sat:		0	5056	233	0	5337	1583	560	765	549	429

Capacity Analysis Module:		0.00		0.57		0.00		0.72		0.16		0.29		0.29		0.31		0.31	
Vol/Sat:		0.00	0.57	0.57	0.00	0.72	0.16	0.29	0.29	0.29	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Crit Moves:		0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
Green/Cycle:		0.00	1.10	1.10	0.00	1.38	0.31	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Volume/Cap:		0.00	67.2	67.2	0.00	191	11.1	54.3	54.3	54.3	54.3	54.3	54.3	54.3	54.3	54.3	54.3	54.3	54.3
Delay/Veh:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
User DelAdj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:		0.00	67.2	67.2	0.00	191	11.1	54.3	54.3	54.3	54.3	54.3	54.3	54.3	54.3	54.3	54.3	54.3	54.3
LOS by Move:		A	E	A	F	B	D	D	D	D	D	D	D	D	D	D	D	D	D
HCM2AvgQ:		0	44	42	0	88	3	12	12	12	16	16	16	16	16	16	16	16	16

Note: Queue reported is the number of cars per lane.

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1170 19th / Crespi  
\*\*\*\*\*  
Cycle (sec): 120 Critical Vol./Cap.(X): 0.807  
Loss Time (sec): 0 Average Delay (sec/veh): 74.7  
Optimal Cycle: 96 Level of Service: E  
\*\*\*\*\*

Street Name:		19th				Crespi									
Approach:		North Bound		South Bound		East Bound		West Bound							
Movement:		L	T - R	R	L - T - R	L	T - R	R	L - T - R						
Control:		Permitted		Permitted		Split Phase		Split Phase							
Rights:		Include		Ignore		Ignore		Include							
Min. Green:		59	59	0	0	64	64	21	0	21	0	0			
Y+R:		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lanes:		0	0	3	0	0	0	2	1	0	0	0	0	0	0

Volume Module:											
Base Vol:		0	2485	0	0	3081	99	147	0	97	0
Growth Adj:		1.15	1.12	1.00	1.00	1.18	1.18	1.00	1.00	1.00	1.15
Initial Bse:		0	2772	0	0	3631	117	147	0	97	0
Added Vol:		0	99	0	0	219	74	-88	0	17	0
PasserByVol:		0	0	0	0	0	0	0	0	0	0
Initial Fut:		0	2871	0	0	3850	191	59	0	114	0
User Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:		0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:		0	2929	0	0	3929	0	60	0	0	0
Reduced Vol:		0	0	0	0	0	0	0	0	0	0
Reduced Vol:		0	2929	0	0	3929	0	60	0	0	0
PCE Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:		0	2929	0	0	3929	0	60	0	0	0

Saturation Flow Module:		1900		1900		1900		1900		1900	
Sat/Lane:		1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:		1.00	0.89	1.00	1.00	0.89	0.91	0.93	1.00	1.00	1.00
Lanes:		0.00	3.00	0.00	0.00	3.00	0.00	1.00	0.00	1.00	0.00
Final Sat:		0	5083	0	0	5083	0	1769	0	1900	0

Capacity Analysis Module:		0.00		0.58		0.00		0.77		0.00		0.03		0.00		0.00		0.00	
Vol/Sat:		0.00	0.58	0.58	0.00	0.77	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crit Moves:		0.51	0.51	0.51	0.51	0.69	0.69	0.69	0.28	0.28	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Green/Cycle:		0.00	1.13	0.00	0.00	1.13	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Volume/Cap:		0.00	85.1	0.00	0.00	67.5	0.00	33.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Delay/Veh:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
User DelAdj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:		0.00	85.1	0.00	0.00	67.5	0.00	33.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LOS by Move:		A	F	A	A	E	A	A	C	A	A	A	A	A	A	A	A	A	A
HCM2AvgQ:		0	57	0	0	70	0	2	0	0	0	0	0	0	0	0	0	0	0

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4a

## Level of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\* Intersection #1181 Chumasero / Brotherhood \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.934  
 Loss Time (sec): 8 Average Delay (sec/veh): 85.3  
 Optimal Cycle: 123 Level Of Service: F

Street Name: Chumasero Brotherhood  
 Approach: North Bound South Bound East Bound West Bound  
 Movement: L - T - R L - T - R L - T - R L - T - R  
 Control: Split Phase Split Phase Protected Protected  
 Rights: Include Include Include Include  
 Min. Green: 0 0 15 15 20 48 48 20 48 48  
 Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
 Lanes: 0 0 1 0 0 0 1 0 0 1 0 2 1 0

## Volume Module:

Base Vol: 0 0 0 79 0 12 39 1471 0 0 1625 121  
 Growth Adj: 1.28 1.00 1.08 1.27 1.38 1.47 1.08 1.16 1.27 1.47 1.57 1.28  
 Initial Bse: 0 0 0 100 0 18 42 1710 0 0 2550 155  
 Added Vol: 0 0 0 62 0 -11 -23 442 0 0 657 180  
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
 Initial Fut: 0 0 0 162 0 7 19 2152 0 0 3207 335  
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
 PHF Volume: 0 0 0 166 0 7 19 2196 0 0 3273 342  
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
 Reduced Vol: 0 0 0 166 0 7 19 2196 0 0 3273 342  
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 FinalVolume: 0 0 0 166 0 7 19 2196 0 0 3273 342

## Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
 Adj: 0.80 0.80 1.00 0.71 0.75 0.71 0.93 0.93 1.00 1.00 0.88 0.88  
 Lanes: 0.00 1.00 0.00 0.96 0.00 0.04 1.00 2.00 0.00 1.00 2.72 0.28  
 Final Sat: 0.1520 0.1299 0.54 1769 3538 0.1900 4538 474

## Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.00 0.13 0.00 0.13 0.01 0.62 0.00 0.00 0.72 0.72  
 Crit Moves: \*\*\*\*  
 Green/Cycle: 0.00 0.00 0.00 0.15 0.00 0.15 0.20 0.77 0.00 0.00 0.57 0.57  
 Volume/Cap: 0.00 0.00 0.00 0.85 0.00 0.85 0.05 0.81 0.00 0.00 1.27 1.27  
 Delay/Veh: 0.0 0.0 0.0 80.0 0.0 80.0 32.6 2.7 0.0 0.0 136 136.1  
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 AdjDel/Veh: 0.0 0.0 0.0 80.0 0.0 80.0 32.6 2.7 0.0 0.0 136 136.1  
 LOS by Move: A A A F A F C A A A F F  
 HCM2kAVGQ: 0 0 0 8 0 8 0 4 0 0 0 73 73

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4a

## Level of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\* Intersection #1182 Thomas More / Brotherhood \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.572  
 Loss Time (sec): 8 Average Delay (sec/veh): 21.9  
 Optimal Cycle: 97 Level Of Service: C

Street Name: Thomas More Brotherhood  
 Approach: North Bound South Bound East Bound West Bound  
 Movement: L - T - R L - T - R L - T - R L - T - R  
 Control: Split Phase Split Phase Protected Protected  
 Rights: Include Include Include Include  
 Min. Green: 20 20 20 0 0 0 21 48 48 21 48 48  
 Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
 Lanes: 0 0 1 0 0 0 0 0 0 0 2 1 0 1 0 3 0 0

## Volume Module:

Base Vol: 17 0 32 0 0 0 0 1535 15 33 1609 0  
 Growth Adj: 1.28 1.00 1.08 1.27 1.38 1.47 1.08 1.16 1.27 1.47 1.57 1.28  
 Initial Bse: 22 0 34 0 0 0 0 1785 19 49 2525 0  
 Added Vol: 0 0 0 0 0 0 0 504 0 0 837 0  
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
 Initial Fut: 22 0 34 0 0 0 0 2289 19 49 3362 0  
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
 PHF Volume: 22 0 35 0 0 0 0 2335 19 50 3431 0  
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
 Reduced Vol: 22 0 35 0 0 0 0 2335 19 50 3431 0  
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 FinalVolume: 22 0 35 0 0 0 0 2335 19 50 3431 0

## Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
 Adj: 0.88 1.00 0.88 1.00 1.00 1.00 1.00 0.89 0.89 0.93 0.89 1.00  
 Lanes: 0.39 0.00 0.61 0.00 0.00 0.00 0.00 2.98 0.02 1.00 3.00 0.00  
 Final Sat: 0.648 0.1027 0.0 0 0 0 0 5036 42 1769 5083 0

## Capacity Analysis Module:

Vol/Sat: 0.03 0.00 0.03 0.00 0.00 0.00 0.00 0.46 0.46 0.03 0.67 0.00  
 Crit Moves: \*\*\*\*  
 Green/Cycle: 0.20 0.00 0.20 0.00 0.00 0.00 0.00 0.51 0.51 0.21 0.72 0.00  
 Volume/Cap: 0.17 0.00 0.17 0.00 0.00 0.00 0.00 0.91 0.91 0.13 0.94 0.00  
 Delay/Veh: 33.4 0.0 33.4 0.0 0.0 0.0 0.0 27.7 27.7 32.3 17.6 0.0  
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 AdjDel/Veh: 33.4 0.0 33.4 0.0 0.0 0.0 0.0 27.7 27.7 32.3 17.6 0.0  
 LOS by Move: C A C A A A C C C C B A  
 HCM2kAVGQ: 2 0 2 0 0 0 0 25 25 1 38 0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #190 Sunset / Taraval  
Cycle (sec): 60 Critical Vol./Cap.(X): 0.960  
Loss time (sec): 10 Average Delay (sec/veh): 125.6  
Optimal Cycle: 100 Level Of Service: F

Street Name:		Sunset				Taraval			
Approach:		North Bound		South Bound		East Bound		West Bound	
Movement:		L	T - R	L	T - R	L	T - R	L	T - R
Control:		Permitted		Permitted		Permitted		Permitted	
Rights:		Include		Include		Include		Include	
Min. Green:		29	29	29	29	21	21	21	21
Y+R:		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:		0	0	2	1	0	0	1	0

Volume Module:		0 2129 96		0 1790 117		70 238 37		76 243 30	
Base Vol:		1.14 1.20 1.12		1.15 1.12 1.04		1.15 1.17 1.08		1.14 1.17 1.08	
Growth Adj:		0 2553 108		0 2261 137		79 249 43		89 263 34	
Initial Bse:		0 483 0		0 513 0		0 0 0		0 0 0	
Added Vol:		0 0 0		0 0 0		0 0 0		0 0 0	
PasserByVol:		0 0 0		0 0 0		0 0 0		0 0 0	
Initial Fut:		0 3036 108		0 2774 137		79 249 43		89 263 34	
User Adj:		1.00 1.00 1.00		1.00 1.00 1.00		1.00 1.00 1.00		1.00 1.00 1.00	
PHF Adj:		0.98 0.98 0.98		0.98 0.98 0.98		0.98 0.98 0.98		0.98 0.98 0.98	
PHF Volume:		0 3098 110		0 2831 140		80 254 44		91 268 35	
Reduced Vol:		0 0 0		0 0 0		0 0 0		0 0 0	
Reduced Vol:		0 3098 110		0 2831 140		80 254 44		91 268 35	
PCE Adj:		1.00 1.00 1.00		1.00 1.00 1.00		1.00 1.00 1.00		1.00 1.00 1.00	
MLF Adj:		1.00 1.00 1.00		1.00 1.00 1.00		1.00 1.00 1.00		1.00 1.00 1.00	
FinalVolume:		0 3098 110		0 2831 140		80 254 44		91 268 35	

Saturation Flow Module:		1900 1900 1900		1900 1900 1900		1900 1900 1900	
Sat/Lane:		1.00 0.89 0.89		1.00 0.89 0.89		1.00 0.89 0.89	
Adjustment:		0.00 2.90 0.10		0.00 2.86 0.14		0.00 2.86 0.15	
Lanes:		0 4885 173		0 4810 238		916 1554 267	
Final Sat:		0 4885 173		0 4810 238		916 1554 267	

Capacity Analysis Module:		0.00 0.63 0.63		0.00 0.59 0.59		0.09 0.16 0.16		0.10 0.17 0.17	
Vol/Sat:		0.00 0.63 0.63		0.00 0.59 0.59		0.09 0.16 0.16		0.10 0.17 0.17	
Crit Moves:		0.00 0.48 0.48		0.00 0.48 0.48		0.35 0.35 0.35		0.35 0.35 0.35	
Green/Cycle:		0.00 1.31 1.31		0.00 1.22 1.22		0.25 0.47 0.47		0.28 0.47 0.47	
Volume/Cap:		0.00 159 159		0.00 117 117		15.7 17.6 17.6		16.2 17.7 17.7	
Delay/Veh:		1.00 1.00 1.00		1.00 1.00 1.00		1.00 1.00 1.00		1.00 1.00 1.00	
User DelAdj:		0.00 159 159		0.00 117 117		15.7 17.6 17.6		16.2 17.7 17.7	
AdjDel/Veh:		0.00 159 159		0.00 117 117		15.7 17.6 17.6		16.2 17.7 17.7	
LOS by Move:		A F A F A F		A F A F A F		B B B B B B		B B B B B B	
HCW2kAvgQ:		0 58 58		0 47 47		1 5 5		1 5 5	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1200 Sunset / Ocean

Street Name:	
Approach:	
Movement:	
Control:	
Rights:	
Min. Green	
Y+R:	
Lanes:	

Volume Module:		0 1682 14		1 1588 60		30 61 18		37 47 226	
Base Vol:		1.11 1.24 1.10		1.00 1.00 1.00		1.10 1.00 1.00		1.00 1.00 1.00	
Growth Adj:		0 2085 15		1 1589 60		33 61 18		37 47 252	
Initial Bse:		0 590 0		0 670 0		0 0 0		0 0 0	
Added Vol:		0 0 0		0 0 0		0 0 0		0 0 0	
PasserByVol:		0 0 0		0 0 0		0 0 0		0 0 0	
Initial Fut:		0 2675 15		1 2259 60		33 61 18		37 47 252	
User Adj:		1.00 1.00 1.00		1.00 1.00 1.00		1.00 1.00 1.00		1.00 1.00 1.00	
PHF Adj:		0.98 0.98 0.98		0.98 0.98 0.98		0.98 0.98 0.98		0.98 0.98 0.98	
PHF Volume:		0 2729 16		1 2305 61		34 62 18		38 48 257	
Reduced Vol:		0 0 0		0 0 0		0 0 0		0 0 0	
Reduced Vol:		0 2729 16		1 2305 61		34 62 18		38 48 257	
PCE Adj:		1.00 1.00 1.00		1.00 1.00 1.00		1.00 1.00 1.00		1.00 1.00 1.00	
MLF Adj:		1.00 1.00 1.00		1.00 1.00 1.00		1.00 1.00 1.00		1.00 1.00 1.00	
FinalVolume:		0 2729 16		1 2305 61		34 62 18		38 48 257	

Saturation Flow Module:		1900 1900 1900		1900 1900 1900		1900 1900 1900	
Sat/Lane:		1.00 0.89 0.89		1.00 0.89 0.89		1.00 0.89 0.89	
Adjustment:		0.00 2.98 0.02		0.01 2.92 0.07		0.30 0.54 0.16	
Lanes:		0 5049 29		2 4407 117		493 909 268	
Final Sat:		0 5049 29		2 4407 117		493 909 268	

Capacity Analysis Module:		0.00 0.54 0.54		0.52 0.52 0.52		0.07 0.07 0.07		0.03 0.03 0.16	
Vol/Sat:		0.00 0.54 0.54		0.52 0.52 0.52		0.07 0.07 0.07		0.03 0.03 0.16	
Crit Moves:		0.00 0.53 0.53		0.53 0.53 0.53		0.32 0.32 0.32		0.32 0.32 0.32	
Green/Cycle:		0.00 1.01 1.01		0.98 0.98 0.98		0.22 0.22 0.22		0.08 0.08 0.51	
Volume/Cap:		0.00 34.7 34.7		28.0 28.0 28.0		16.0 16.0 16.0		14.7 14.6 20.4	
Delay/Veh:		1.00 1.00 1.00		1.00 1.00 1.00		1.00 1.00 1.00		1.00 1.00 1.00	
User DelAdj:		0.00 34.7 34.7		28.0 28.0 28.0		16.0 16.0 16.0		14.7 14.6 20.4	
AdjDel/Veh:		0.00 34.7 34.7		28.0 28.0 28.0		16.0 16.0 16.0		14.7 14.6 20.4	
LOS by Move:		A C C C C C		C C C C C C		B B B B B B		B B B B B B	
HCW2kAvgQ:		0 21 21		24 24 24		2 2 2		0 1 4	

Note: Queue reported is the number of cars per lane.



Tier 4a PM Thu Feb 4, 2010 14:57:24 Page 25-1  
19th Ave CS  
Tier 4a

Level of Service Computation Report  
2000 HCM 4-Way Stop Method (Future Volume Alternative)  
Intersection #1210 Skyline / Sloot / 39th

Cycle (sec): 100 Critical Vol./Cap.(X): 0.925  
Loss Time (sec): 0 Average Delay (sec/veh): 29.4  
Optimal Cycle: 0 Level of Service: D

Street Name: Skyline / 39th Sloot  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Stop Sign Stop Sign  
Rights: Ignore Include Ignore Include  
Lanes: 0 1 0 0 2 0 0 0 1 0 0 1 0 1 0 1 2 0 1 1 0

Volume Module:  
Base Vol: 327 0 565 0 21 7 2 350 163 450 435 64  
Growth Adj: 1.13 1.23 1.24 1.16 1.08 1.05 1.24 1.25 1.16 1.05 1.03 1.13  
Initial Bse: 371 0 701 0 23 7 2 437 189 475 450 73  
Added Vol: 0 0 3 0 0 0 0 0 43 0 2 35 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 371 0 704 0 23 7 2 480 189 477 485 73  
User Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.00 0.98 0.98 0.98 0.98 0.98 0.00 0.98 0.98 0.98  
PHF Volume: 378 0 0 23 8 3 489 0 486 495 74  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 378 0 0 23 8 3 489 0 486 495 74  
MLF Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00  
Final Volume: 378 0 0 23 8 3 489 0 486 495 74

Saturation Flow Module:  
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Lanes: 1.00 0.00 2.00 0.00 0.75 0.25 0.01 1.99 1.00 2.00 1.74 0.26  
Final Sat: 409 0 912 0 286 93 4 771 406 839 785 119

Capacity Analysis Module:  
Vol/Sat: 0.92 xxxx 0.00 xxxx 0.08 0.08 0.63 0.63 0.00 0.58 0.63 0.62  
Crit Moves: \*\*\*\*  
Delay/Veh: 56.1 0.0 0.0 0.0 12.8 12.8 25.4 25.3 0.0 21.7 22.6 21.9  
Lanes: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 56.1 0.0 0.0 0.0 12.8 12.8 25.4 25.3 0.0 21.7 22.6 21.9  
LOS by Move: F \* \* B B D D \* C C C C  
ApproachDel: 56.1 12.8 12.8 25.3 22.1  
Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
ApprAdjDel: 56.1 12.8 12.8 25.3 22.1  
LOS by Appr: F B D C  
AllwayAvgQ: 5.1 5.1 0.0 0.1 0.1 0.1 1.5 1.5 0.0 1.2 1.5 1.5

Note: Queue reported is the number of cars per lane.

Tier 4a PM Thu Feb 4, 2010 14:57:24 Page 26-1  
19th Ave CS  
Tier 4a

Level of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)  
Intersection #1221 Skyline / Lake Merced (WBR)

Average Delay (sec/veh): 2.5 Worst Case Level of Service: C (17.5)

Street Name: Skyline  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Uncontrolled Uncontrolled  
Rights: Include Include Include Include  
Lanes: 0 0 2 0 0 1 0 2 0 0 0 0 0 0 0 0 0 0 0 0 1

Volume Module:  
Base Vol: 0 853 0 100 489 0 0 0 0 0 0 0 133  
Growth Adj: 1.51 1.12 1.12 1.07 1.12 1.46 1.12 1.02 1.07 1.46 1.81 1.51  
Initial Bse: 0 1041 0 107 548 0 0 0 0 0 0 0 201  
Added Vol: 0 3 0 0 2 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 1044 0 107 550 0 0 0 0 0 0 0 201  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 1065 0 109 561 0 0 0 0 0 0 0 205  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Final Volume: 0 1065 0 109 561 0 0 0 0 0 0 0 205

Critical Gap Module:  
Critical Gap: 4.1 xxxx xxxx xxxx 4.1 xxxx xxxx xxxx 4.1 xxxx xxxx 6.9  
FollowUpTime: 2.2 xxxx xxxx xxxx 2.2 xxxx xxxx xxxx 2.2 xxxx xxxx 3.3

Capacity Module:  
Conflict Vol: xxxx xxxx xxxx 1065 xxxx xxxx xxxx xxxx xxxx 532  
Potential Cap.: xxxx xxxx xxxx 650 xxxx xxxx xxxx xxxx xxxx 492  
Move Cap.: xxxx xxxx xxxx 650 xxxx xxxx xxxx xxxx xxxx 492  
Volume/Cap: xxxx xxxx xxxx 0.17 xxxx xxxx xxxx xxxx xxxx 0.42

Level of Service Module:  
2Way95ChQ: xxxx xxxx xxxx 0.6 xxxx xxxx xxxx xxxx xxxx 2.0  
Control Del: xxxx xxxx xxxx 11.7 xxxx xxxx xxxx xxxx xxxx 17.5  
LOS by Move: \* \* B \* \* \* \* \* \* \* \* \* \* C  
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Shared Cap.: xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx  
SharedQueue: xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx  
Shrd ConDel: xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx  
Shred LOS: \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \*  
ApproachDel: xxxxxx \* xxxxxx 17.5 C  
ApproachLOS: \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \*

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)  
Intersection #1222 Skyline / Lake Merced (WBLT)

Average Delay (sec/veh): 7.4 Worst Case Level Of Service: F[118.6]  
Street Name: Skyline Lake Merced (WBLT)  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign  
Rights: Include Include Include Include  
Lanes: 1 0 1 1 0 0 2 0 1 0 0 0 0 1 0 1 0 0

Volume Module:  
Base Vol: 8 853 118 0 468 21 0 0 0 75 3 0  
Growth Adj: 1.51 1.22 1.12 1.07 1.12 1.46 1.12 1.02 1.07 1.46 1.81 1.51  
Initial Bse: 12 1044 133 0 524 31 0 0 0 110 5 0  
Added Vol: 0 3 0 0 2 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 12 1047 133 0 526 31 0 0 0 110 5 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 12 1069 135 0 537 31 0 0 0 112 6 0  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
FinalVolume: 12 1069 135 0 537 31 0 0 0 112 6 0

Critical Gap Module:  
Critical Gap: 4.1 xxx xxxxxx xxxxxx xxxxxx xxxxxx 6.8 6.5 xxxxxx  
FollowUpTime: 2.2 xxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 3.5 4.0 xxxxxx

Capacity Module:  
Conflict Vol: 568 xxx xxxxxx xxxxxx xxxxxx xxxxxx 1429 1729 xxxxxx  
Potential Cap: 1000 xxx xxxxxx xxxxxx xxxxxx xxxxxx 126 87 xxxxxx  
Move Cap: 1000 xxx xxxxxx xxxxxx xxxxxx xxxxxx 124 86 xxxxxx  
Volume/Cap: 0.01 xxx xxxxxx xxxxxx xxxxxx xxxxxx 0.90 0.06 xxxxxx

Level Of Service Module:  
2Way95thQ: 0.0 xxx xxxxxx xxxxxx xxxxxx xxxxxx 5.7 0.2 xxxxxx  
Control Del: 8.6 xxx xxxxxx xxxxxx xxxxxx xxxxxx 122.0 49.5 xxxxxx  
LOS by Move: A  
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Shared Cap: xxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
SharedQueue: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
Shrd ConDel: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx  
Shared LOS: \* \* \* \* \*  
ApproachDel: xxxxxx  
ApproachLOS: 118.6 F

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)  
Intersection #1230 Sunset / Lake Merced

Average Delay (sec/veh): OVERFLOW Worst Case Level Of Service: F[xxxxx]  
Street Name: Sunset Lake Merced  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign  
Rights: Ignore Ignore Ignore Ignore  
Lanes: 1 0 2 0 0 0 2 0 1 1 0 0 0 1 0 0 1 0 0

Volume Module:  
Base Vol: 197 1777 0 0 1550 52 19 0 195 0 0 0  
Growth Adj: 1.48 1.29 1.19 1.26 1.43 1.55 1.19 1.09 1.26 1.55 1.68 1.48  
Initial Bse: 292 2284 0 0 2209 81 23 0 245 0 0 0  
Added Vol: 0 590 0 0 670 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 292 2874 0 0 2879 81 23 0 245 0 0 0  
User Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 0.00  
PHF Adj: 0.98 0.98 0.00 0.98 0.98 0.00 0.98 0.98 0.00 0.98 0.98 0.00  
PHF Volume: 298 2932 0 0 2938 0 23 0 0 0 0 0  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
FinalVolume: 298 2932 0 0 2938 0 23 0 0 0 0 0

Critical Gap Module:  
Critical Gap: 4.1 xxx xxxxxx xxxxxx xxxxxx 2.8 xxx 6.9 7.5 2.5 6.9  
FollowUpTime: 2.2 xxx xxxxxx xxxxxx xxxxxx xxxxxx 3.5 xxx 3.3 4.0 3.3

Capacity Module:  
Conflict Vol: 298 xxx xxxxxx xxxxxx xxxxxx 5001 xxx 1469 4998 6467 1466  
Potential Cap: 120 xxx xxxxxx xxxxxx xxxxxx 98 xxx 117 0 68 117  
Move Cap: 120 xxx xxxxxx xxxxxx xxxxxx 0 xxx 117 0 0 117  
Volume/Cap: 2.49 xxx xxxxxx xxxxxx xxxxxx xxx 0.00 xxx xxx 0.00

Level Of Service Module:  
2Way95thQ: 26.5 xxx xxxxxx xxxxxx xxxxxx xxx 0.2 xxx xxx xxx  
Control Del: 753.0 xxx xxxxxx xxxxxx xxxxxx xxx xxx xxx xxx  
LOS by Move: F  
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Shared Cap: xxx xxx xxxxxx xxxxxx xxx xxx xxx xxx xxx xxx  
SharedQueue: xxx xxx xxxxxx xxx xxx xxx xxx xxx xxx xxx xxx  
Shrd ConDel: xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx  
Shared LOS: \* \* \* \* \*  
ApproachDel: xxxxxx  
ApproachLOS: +Inf F

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4a

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1240 Lake Merced / Winston  
Cycle (sec): 90 Critical Vol./Cap.(X): 1.372  
Loss Time (sec): 9 Average Delay (sec/veh): 188.9  
Optimal Cycle: 180 Level Of Service: F

Street Name: Lake Merced Winston  
Approach: North Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Protected Split Phase Split Phase  
Rights: WideBypass Include Include  
Min. Green: 34 34 17 55 55 0 0 0 25 25 25  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 2 0 2 0 0 0 2 0 0 0 1

Volume Module:  
Base Vol: 0 1747 404 204 1229 0 0 0 0 180 0 284  
Growth Adj: 1.55 1.12 1.27 1.30 1.18 1.59 1.27 1.43 1.30 1.59 1.99 1.55  
Initial Bse: 0 1948 514 266 1448 0 0 0 0 285 0 441  
Added Vol: 0 315 251 210 460 0 0 0 0 352 0 275  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2263 765 476 1908 0 0 0 0 637 0 716  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2310 780 485 1947 0 0 0 0 650 0 731  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2310 780 485 1947 0 0 0 0 650 0 731  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2310 780 485 1947 0 0 0 0 650 0 731

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.86 0.86 0.90 0.93 1.00 1.00 1.00 1.00 0.90 1.00 0.83  
Lanes: 0.00 2.24 0.76 2.00 2.00 0.00 0.00 0.00 0.00 2.00 0.00 1.00  
Final Sat: 0 3655 1235 3432 3538 0 0 0 0 3432 0 1583

Capacity Analysis Module:  
Vol/Sat: 0.00 0.63 0.63 0.14 0.55 0.00 0.00 0.00 0.00 0.19 0.00 0.46  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.38 0.38 0.38 0.19 0.62 0.62 0.00 0.00 0.00 0.28 0.28  
Volume/Cap: 0.00 1.65 1.65 0.73 0.89 0.00 0.00 0.00 0.00 0.68 0.00 1.66  
Delay/Veh: 0.0 320 319.5 40.8 13.9 0.0 0.0 0.0 0.0 32.9 0.0 340.5  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 320 319.5 40.8 13.9 0.0 0.0 0.0 0.0 32.9 0.0 340.5  
LOS by Move: A F F B A A A A A C A F  
HCM2kAvgQ: 0 86 86 6 18 0 0 0 0 9 0 57

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4a

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1250 Lake Merced / Font  
Cycle (sec): 90 Critical Vol./Cap.(X): 1.546  
Loss Time (sec): 7 Average Delay (sec/veh): 179.5  
Optimal Cycle: 180 Level Of Service: F

Street Name: Lake Merced Font  
Approach: North Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Protected Split Phase Split Phase  
Rights: Ignore Include Include  
Min. Green: 43 43 43 15 61 61 0 0 0 22 0 22  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 1 0 0 1

Volume Module:  
Base Vol: 0 1683 17 176 1644 0 0 0 0 104 0 331  
Growth Adj: 1.08 1.12 1.10 1.13 1.18 1.11 1.10 1.08 1.13 1.11 1.04 1.08  
Initial Bse: 0 1877 19 198 1937 0 0 0 0 115 0 357  
Added Vol: 0 359 -10 417 527 0 0 0 0 -9 0 304  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2236 9 615 2464 0 0 0 0 106 0 661  
User Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.00 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2282 0 628 2515 0 0 0 0 109 0 674  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2282 0 628 2515 0 0 0 0 109 0 674  
PCE Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2282 0 628 2515 0 0 0 0 109 0 674

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 1.00 0.93 0.93 1.00 1.00 1.00 1.00 0.93 1.00 0.83  
Lanes: 0.00 2.00 1.00 1.00 2.00 0.00 0.00 0.00 0.00 1.00 0.00 1.00  
Final Sat: 0 3538 1900 1769 3538 0 0 0 0 1769 0 1583

Capacity Analysis Module:  
Vol/Sat: 0.00 0.64 0.00 0.35 0.71 0.00 0.00 0.00 0.00 0.06 0.00 0.43  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.48 0.48 0.48 0.17 0.68 0.68 0.00 0.00 0.00 0.24 0.24 0.24  
Volume/Cap: 0.00 1.35 0.00 2.13 1.05 0.00 0.00 0.00 0.00 0.25 0.00 1.74  
Delay/Veh: 0.0 180 0.0 556.9 37.7 0.0 0.0 0.0 0.0 28.8 0.0 379.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 180 0.0 556.9 37.7 0.0 0.0 0.0 0.0 28.8 0.0 379.0  
LOS by Move: A F A F A A A A A C A F  
HCM2kAvgQ: 0 69 0 59 50 0 0 0 0 3 0 55

Note: Queue reported is the number of cars per lane.



Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1261 Lake Merced / Vidal  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.887  
Loss Time (sec): 12 Average Delay (sec/veh): 36.0  
Optimal Cycle: 104 Level of Service: D  
\*\*\*\*\*

Street Name: Lake Merced Vidal											
Approach: North Bound South Bound East Bound West Bound											
Movement:			L	T	R	L	T	R	L	T	R
Control: Permitted Protected Split Phase Split Phase											
Rights:			Include			Include			Include		
Min. Green:			41	41	59	0	0	0	20	20	20
Y+R:			4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:			0	0	2	0	1	0	0	0	1

Volume Module:											
Base Vol:			0	1811	9	13	1748	0	0	0	11
Growth Adj:			1.00	1.12	1.16	1.19	1.18	1.00	1.00	1.00	1.88
Initial Bse:			0	2028	10	15	2063	0	0	0	21
Added Vol:			0	290	65	102	415	0	0	0	59
PasserByVol:			0	0	0	0	0	0	0	0	0
Initial Fut:			0	2318	75	117	2478	0	0	0	80
User Adj:			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:			0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:			0	2366	77	120	2528	0	0	0	81
Reduced Vol:			0	0	0	0	0	0	0	0	0
Reduced Vol:			0	2366	77	120	2528	0	0	0	81
PCE Adj:			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:			0	2366	77	120	2528	0	0	0	81

Saturation Flow Module:											
Sat/Lane:			1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:			1.00	0.93	0.83	0.93	0.93	1.00	1.00	0.93	0.83
Lanes:			3.00	2.00	1.00	1.00	2.00	0.00	0.00	1.00	0.00
Final Sat:			0	3538	1583	1769	3538	0	0	0	1583
Capacity Analysis Module:											
Vol/Sat:			0.00	0.67	0.05	0.07	0.71	0.00	0.00	0.00	0.05
Crit Moves:			0.00	0.66	0.06	0.07	0.70	0.00	0.00	0.00	0.11
Green/Cycle:			0.63	0.63	0.63	0.10	0.77	0.77	0.00	0.00	0.15
Volume/Cap:			0.00	1.06	0.08	0.68	0.93	0.00	0.00	0.00	0.34
Delay/Veh:			0.0	56.3	7.3	62.4	16.3	0.0	0.0	0.0	42.0
User DelAdj:			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:			0.0	56.3	7.3	62.4	16.3	0.0	0.0	0.0	42.0
LOS by Move:			A	E	A	E	B	A	A	A	D
HCM2kAvgQ:			0	45	1	3	31	0	0	0	3

Note: Queue reported is the number of cars per lane.

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1262 Lake Merced / Acevedo  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.959  
Loss Time (sec): 12 Average Delay (sec/veh): 34.6  
Optimal Cycle: 146 Level of Service: C  
\*\*\*\*\*

Street Name: Lake Merced Acevedo											
Approach: North Bound South Bound East Bound West Bound											
Movement:			L	T	R	L	T	R	L	T	R
Control: Protected Protected Split Phase Split Phase											
Rights:			Include			Include			Include		
Min. Green:			41	41	41	11	59	59	0	0	20
Y+R:			4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:			0	0	2	0	1	1	0	2	0

Volume Module:											
Base Vol:			0	1806	11	14	1743	0	0	0	15
Growth Adj:			1.88	1.12	1.16	1.19	1.18	1.91	1.16	1.20	1.19
Initial Bse:			0	2023	13	17	2057	0	0	0	28
Added Vol:			0	278	79	108	365	0	0	0	77
PasserByVol:			0	0	0	0	0	0	0	0	0
Initial Fut:			0	2301	92	125	2422	0	0	0	105
User Adj:			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:			0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:			0	2348	94	127	2471	0	0	0	107
Reduced Vol:			0	0	0	0	0	0	0	0	0
Reduced Vol:			0	2348	94	127	2471	0	0	0	107
PCE Adj:			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:			0	2348	94	127	2471	0	0	0	107

Saturation Flow Module:											
Sat/Lane:			1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:			1.00	0.93	0.83	0.93	0.93	1.00	1.00	1.00	0.88
Lanes:			0.00	2.00	1.00	1.00	2.00	0.00	0.00	0.00	0.41
Final Sat:			0	3538	1583	1769	3538	0	0	0	990
Capacity Analysis Module:											
Vol/Sat:			0.00	0.66	0.06	0.07	0.70	0.00	0.00	0.00	0.11
Crit Moves:			0.00	0.66	0.06	0.07	0.70	0.00	0.00	0.00	0.11
Green/Cycle:			0.63	0.63	0.63	0.10	0.77	0.77	0.00	0.00	0.15
Volume/Cap:			0.00	1.05	0.09	0.72	0.91	0.00	0.00	0.00	0.72
Delay/Veh:			0.0	53.5	7.5	65.8	14.5	0.0	0.0	0.0	57.0
User DelAdj:			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:			0.0	53.5	7.5	65.8	14.5	0.0	0.0	0.0	57.0
LOS by Move:			A	D	A	E	B	A	A	A	E
HCM2kAvgQ:			0	44	1	4	31	0	0	0	7

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4a

## Level Of Service Computation Report

## 2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #1263 Lake Merced / Higuera  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 1.135  
Loss Time (sec): 12 Average Delay (sec/veh): 45.4  
Optimal Cycle: 180 Level Of Service: D  
\*\*\*\*\*

Street Name: Lake Merced Higuera  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Protected Include Split Phase  
Rights: 41 41 41 11 59 59 0 0 0 0 20 0 20  
Min. Green: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Y+R: 0 0 2 0 1 1 0 2 0 0 0 0 0 0 1 0 0  
Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 0 0 1 0 0

Volume Module:  
Base Vol: 0 1795 41 23 1730 0 0 0 0 30 0 22  
Growth Adj: 1.88 1.12 1.16 1.19 1.18 1.91 1.16 1.20 1.19 1.91 2.64 1.88  
Initial Bse: 0 2002 47 27 2039 0 0 0 0 57 0 41  
Added Vol: 0 241 280 174 247 0 0 0 0 180 0 116  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2243 327 201 2286 0 0 0 0 237 0 157  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2289 334 205 2332 0 0 0 0 242 0 160  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2289 334 205 2332 0 0 0 0 242 0 160  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2289 334 205 2332 0 0 0 0 242 0 160

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.83 0.93 0.93 1.00 1.00 1.00 1.00 0.90 1.00 0.90  
Lanes: 0.00 2.00 1.00 1.00 2.00 0.00 0.00 0.00 0.00 0.60 0.00 0.40  
Final Sat.: 0 3538 1583 1769 3538 0 0 0 0 1029 0 682

Capacity Analysis Module:  
Vol/Sat: 0.00 0.65 0.21 0.12 0.66 0.00 0.00 0.00 0.00 0.24 0.00 0.24  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.63 0.63 0.63 0.10 0.77 0.00 0.00 0.00 0.00 0.15 0.15  
Volume/Cap: 0.00 1.03 0.34 1.16 0.86 0.00 0.00 0.00 0.00 1.57 0.00 1.57  
Delay/Veh: 0.0 35.5 5.2 162.9 3.7 0.0 0.0 0.0 0.0 316.7 0.0 316.7  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 35.5 5.2 162.9 3.7 0.0 0.0 0.0 0.0 316.7 0.0 316.7  
LOS by Move: A D A F A A A A A A F A F  
HCM2kAvgQ: 0 40 2 10 3 0 0 0 0 32 0 32  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4a

## Level Of Service Computation Report

## 2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #1264 Lake Merced / Gonzalez  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 1.032  
Loss Time (sec): 12 Average Delay (sec/veh): 52.4  
Optimal Cycle: 180 Level Of Service: D  
\*\*\*\*\*

Street Name: Lake Merced Gonzalez  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Protected Include Protected  
Rights: 41 41 41 11 59 59 0 0 0 0 22 22 22  
Min. Green: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Y+R: 0 0 2 0 1 1 0 2 0 0 0 0 0 0 1 0 1 0 0  
Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 0 0 1 0 1 0 0

Volume Module:  
Base Vol: 0 1827 65 8 1751 0 0 0 0 53 0 9  
Growth Adj: 1.88 1.12 1.16 1.19 1.18 1.91 1.16 1.20 1.19 1.91 2.64 1.88  
Initial Bse: 0 2046 75 10 2066 0 0 0 0 101 0 17  
Added Vol: 0 475 449 64 362 0 0 0 0 320 0 46  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2521 524 74 2428 0 0 0 0 421 0 63  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2573 535 75 2478 0 0 0 0 430 0 64  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2573 535 75 2478 0 0 0 0 430 0 64  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2573 535 75 2478 0 0 0 0 430 0 64

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.83 0.93 0.93 1.00 1.00 1.00 1.00 0.92 1.00 0.92  
Lanes: 0.00 2.00 1.00 1.00 2.00 0.00 0.00 0.00 0.00 1.77 0.00 0.23  
Final Sat.: 0 3538 1583 1769 3538 0 0 0 0 3097 0 403

Capacity Analysis Module:  
Vol/Sat: 0.00 0.73 0.34 0.04 0.70 0.00 0.00 0.00 0.00 0.14 0.00 0.16  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.63 0.63 0.63 0.10 0.77 0.00 0.00 0.00 0.00 0.15 0.15  
Volume/Cap: 0.00 1.15 0.54 0.42 0.91 0.00 0.00 0.00 0.00 0.93 0.00 0.93  
Delay/Veh: 0.0 93.5 12.4 49.6 14.6 0.0 0.0 0.0 0.0 66.2 0.0 102.1  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 93.5 12.4 49.6 14.6 0.0 0.0 0.0 0.0 66.2 0.0 102.1  
LOS by Move: A F B D B A A A A A E A F  
HCM2kAvgQ: 0 61 8 2 33 0 0 0 0 11 0 15  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

Tier 4a

# Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #1270 Lake Merced / Brotherhood  
\*\*\*\*\*

Cycle (sec):	110	Critical Vol./Cap. (X):	2.199
Loss Time (sec):	15	Average Delay (sec/veh):	186.0
Optimal Cycle:	180	Level Of Service:	F

Street Name:	Lake Merced		Brotherhood	
Approach:	North Bound	South Bound	East Bound	West Bound
Measurement:	Y	F	Y	F
	1	2	1	2
	3	4	3	4
	5	6	5	6
	7	8	7	8
	9	10	9	10
	11	12	11	12
	13	14	13	14
	15	16	15	16
	17	18	17	18
	19	20	19	20
	21	22	21	22
	23	24	23	24
	25	26	25	26
	27	28	27	28
	29	30	29	30
	31	32	31	32
	33	34	33	34
	35	36	35	36
	37	38	37	38
	39	40	39	40
	41	42	41	42
	43	44	43	44
	45	46	45	46
	47	48	47	48
	49	50	49	50
	51	52	51	52
	53	54	53	54
	55	56	55	56
	57	58	57	58
	59	60	59	60
	61	62	61	62
	63	64	63	64
	65	66	65	66
	67	68	67	68
	69	70	69	70
	71	72	71	72
	73	74	73	74
	75	76	75	76
	77	78	77	78
	79	80	79	80
	81	82	81	82
	83	84	83	84
	85	86	85	86
	87	88	87	88
	89	90	89	90
	91	92	91	92
	93	94	93	94
	95	96	95	96
	97	98	97	98
	99	100	99	100

Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:												
Rights:												
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y-R:	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Phases:	0	2	0	1	2	0	1	0	0	0	1	0

Volume Module:													
Base Vol:	0	504	195	1342	517	0	0	0	0	0	267	0	1323
Growth Adj:	1.71	1.12	1.14	1.17	1.18	1.74	1.14	1.16	1.17	1.74	2.31	1.71	
Initial Adj:	0	562	222	1572	609	0	0	0	0	465	0	2264	
Added Vol:	0	339	-26	432	250	0	0	0	0	-13	0	585	
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0	
Initial Fut:	0	901	196	2004	859	0	0	0	0	452	0	2849	
User Adj:	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
PHF Volume:	0	920	200	2045	0	0	0	0	0	462	0	2907	
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0	
Reduced Vol:	0	920	200	2045	0	0	0	0	0	462	0	2907	
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Original Adj:	0	920	200	2045	0	0	0	0	0	462	0	2907	

Saturation Flow Module:											
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.93	0.83	0.90	1.00	1.00	1.00	1.00	1.00	0.93	1.00
Lanes:	0.00	2.00	1.00	2.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00
Final Sat.:	0	3538	1583	3432	1900	0	0	0	0	1769	0

Capacity Analysis Module:										
Vol/Sat:	0.00	0.26	0.13	0.60	0.00	0.00	0.00	0.00	0.00	0.26 0.00 1.04
****										
Crat Moves:										****
Green/Cycle:	0.16	0.16	0.43	0.48	0.69	0.69	0.00	0.00	0.00	0.22 0.22 0.75
Volume/Cap:	0.00	1.59	0.30	1.24	0.00	0.00	0.00	0.00	0.00	1.20 0.00 1.40
Delay/Ven:	0.0	319	18.1	134.5	0.0	0.0	0.0	0.0	0.0	153.7 0.0 196.9
Der Del/dJ:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00 1.00 1.00
AdDel/Ven:	0.0	319	18.1	134.5	0.0	0.0	0.0	0.0	0.0	153.7 0.0 196.9
LOS by Move:	A	F	B	F	A	A	A	A	A	F A F A F
CM2 ch/g:	0	40	4	58	0	0	0	0	0	28 0 113

Note: Cuts reported is the number of cars per lane.



Tier 4A Conditions  
Weekend Midday Peak Hour

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1030 Junipero Serra / Sloat / West Portal / St. Francis  
Cycle (sec): 105 Critical Vol./Cap.(X): 1.183  
Loss time (sec): 16 Average Delay (sec/veh): 181.9  
Optimal Cycle: 180 Level Of Service: F  
\*\*\*\*\*

Street Name: Junipero Serra / West Portal Sloat / St. Francis  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Protected Permitted Split Phase  
Rights: Include Include Ignore Include  
Min. Green: 16 53 32 32 32 15 15 15 20 20 20  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 3 0 1 1 0 0 0 2 1 0 3 0 1 0 1 0 1 0

Volume Module:  
Base Vol: 1575 1246 23 0 787 272 895 346 371 14 293 26  
Growth Adj: 1.13 1.12 1.10 1.13 1.16 1.10 1.08 1.13 1.16 1.15 1.13  
Initial Bse: 1781 1390 25 0 927 316 984 375 420 16 336 29  
Added Vol: 92 212 0 0 261 0 2 0 88 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 1873 1602 25 0 1188 316 986 375 508 16 336 29  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 1912 1634 26 0 1213 323 1006 382 0 17 343 30  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 1912 1634 26 0 1213 323 1006 382 0 17 343 30  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 1912 1634 26 0 1213 323 1006 382 0 17 343 30

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.98 0.92 0.92 1.00 0.87 0.87 0.89 0.97 1.00 0.92 0.92 0.92  
Lanes: 3.00 1.97 0.03 0.00 2.37 0.63 3.00 1.00 1.00 0.09 1.76 0.15  
Final Sat.: 5096 3441 54 0 3929 1046 5096 1843 1900 149 3071 269

Capacity Analysis Module:  
Vol/Sat: 0.38 0.47 0.47 0.00 0.31 0.31 0.20 0.21 0.00 0.11 0.11 0.11  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.21 0.51 0.51 0.00 0.30 0.30 0.14 0.14 0.00 0.19 0.19 0.19  
Volume/Cap: 1.79 0.92 0.92 0.00 1.01 1.01 1.38 1.45 0.00 0.59 0.59 0.59  
Delay/Veh: 401.1 27.0 27.0 0.0 62.1 62.1 225.1 268 0.0 42.5 42.5 42.5  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 401.1 27.0 27.0 0.0 62.1 62.1 225.1 268 0.0 42.5 42.5 42.5  
LOS by Move: F C C A E F F A D D  
HCM2kAvgQ: 56 25 25 0 25 25 29 0 7 7 7

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1070 Junipero Serra / 19th  
Cycle (sec): 100 Critical Vol./Cap.(X): 1.855  
Loss time (sec): 17 Average Delay (sec/veh): 232.4  
Optimal Cycle: 180 Level Of Service: F  
\*\*\*\*\*

Street Name: Junipero Serra 19th  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Split Phase Split Phase Permitted Permitted  
Rights: Ignore Ignore OVI Include  
Min. Green: 54 54 54 20 20 20 9 9 9 9 9 9  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 3 0 1 1 0 0 0 3 1 0 0 0 1 0 3 0 0 0 1 0

Volume Module:  
Base Vol: 2245 1828 70 0 1917 12 0 85 4216 0 76 36  
Growth Adj: 1.09 1.12 1.06 1.09 1.18 1.12 1.06 1.01 1.09 1.12 1.06 1.09  
Initial Bse: 2442 2039 74 0 2259 13 0 86 4610 0 81 39  
Added Vol: 135 137 1 0 31 0 0 41 282 0 0 30  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 2577 2176 75 0 2290 13 0 127 4892 0 81 69  
User Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.00 0.98 0.98 0.00 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 2629 2220 0 0 2337 0 0 129 4992 0 82 71  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 2629 2220 0 0 2337 0 0 129 4992 0 82 71  
PCE Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 2629 2220 0 0 2337 0 0 129 4992 0 82 71

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.90 0.93 0.95 1.00 0.89 0.91 1.00 0.98 0.73 1.00 0.92 0.92  
Lanes: 3.00 2.00 0.00 0.00 4.00 0.00 0.00 1.00 3.00 0.00 0.54 0.46  
Final Sat.: 5147 3538 0 0 6778 0 0 1862 4178 0 940 807

Capacity Analysis Module:  
Vol/Sat: 0.51 0.63 0.00 0.00 0.34 0.00 0.00 0.07 1.19 0.00 0.09 0.09  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.54 0.54 0.54 0.20 0.20 0.20 0.09 0.09 0.68 0.09 0.09 0.09  
Volume/Cap: 0.95 1.16 0.00 0.00 1.72 0.00 0.00 0.77 1.76 0.00 0.97 0.97  
Delay/Veh: 23.6 95.3 0.0 0.0 369 0.0 0.0 72.9 347.4 0.0 110.1 110.1  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 23.6 95.3 0.0 0.0 369 0.0 0.0 72.9 347.4 0.0 110.1 110.1  
LOS by Move: C F A A F A F A F A F  
HCM2kAvgQ: 28 57 0 0 52 0 0 6 157 0 8 8

Note: Queue reported is the number of cars per lane.

Tier 4a WE	Mon Jan 4, 2010 09:36:44	Page 17-1
19th Ave CS		
Tier 4a		
Level of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1140 19th / Winston		
Cycle (sec):	100	Critical Vol./Cap.(X): 1.714
Loss Time (sec):	13	Average Delay (sec/veh): 182.6
Optimal Cycle:	180	Level of Service: F
Street Name: 19th		
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Protected	Permitted
Rights:	Include	Include
Min. Green:	16 44 44	44 44 44
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	2 0 2 1 0 0	0 0 3 0 1 1
Volume Module:		
Base Vol:	424 1667 58	0 2144 200
Growth Adj:	1.03 1.12 1.05	1.09 1.18 1.06
Initial Bse:	436 1859 61	0 2527 212
Added Vol:	164 71 0	0 130 118
PasserByVol:	0 0 0	0 0 0
Initial Fut:	600 1930 61	0 2657 330
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	612 1970 62	0 2711 337
Reduced Vol:	0 0 0	0 0 0
Reduced Vol:	612 1970 62	0 2711 337
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00
FinalVolume:	612 1970 62	0 2711 337
Saturation Flow Module:		
Sat/Lane:	1900 1900	1900 1900
Adjustment:	0.90 0.89 0.89	1.00 1.34 0.83
Lanes:	2.00 2.91 0.09	0.00 3.00 1.00
Final Sat:	3432 4903 155	0 7625 1583
Capacity Analysis Module:		
Vol/Sat:	0.18 0.40 0.40	0.00 0.36 0.21
Crit Moves:	***	***
Green/Cycle:	0.16 0.44 0.44	0.44 0.44 0.44
Volume/Cap:	1.11 0.91 0.91	0.00 0.81 0.48
Delay/Veh:	115.9 29.4 29.4	0.0 22.9 19.3
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	115.9 29.4 29.4	0.0 22.9 19.3
LOS by Move:	F C C	A C B
HC2RAVGQ:	14 21 21	0 25 6
Note: Queue reported is the number of cars per lane.		

Tier 4a WE	Mon Jan 4, 2010 09:36:44	Page 14-1
19th Ave CS		
Tier 4a		
Level of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1110 19th / Sloat		
Cycle (sec):	100	Critical Vol./Cap.(X): 1.579
Loss Time (sec):	9	Average Delay (sec/veh): 118.7
Optimal Cycle:	180	Level of Service: F
Street Name: 19th		
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Permitted	Permitted
Rights:	Include	Include
Min. Green:	0 43 43	11 58 58
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 2 1 0 1	0 0 2 1 0 1
Volume Module:		
Base Vol:	0 2032 83	275 2702 314
Growth Adj:	1.13 1.12 1.10	1.13 1.18 1.13
Initial Bse:	0 2266 91	311 3184 365
Added Vol:	0 242 2	27 234 8
PasserByVol:	0 0 0	0 0 0
Initial Fut:	0 2508 93	338 3418 373
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	0 2559 95	345 3488 381
Reduced Vol:	0 0 0	0 0 0
Reduced Vol:	0 2559 95	345 3488 381
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00
FinalVolume:	0 2559 95	345 3488 381
Saturation Flow Module:		
Sat/Lane:	1900 1900	1900 1900
Adjustment:	1.00 0.89 0.89	0.93 0.88 0.88
Lanes:	0.00 2.89 0.11	1.00 2.70 0.30
Final Sat:	0 4877 181	1769 4514 493
Capacity Analysis Module:		
Vol/Sat:	0.00 0.52 0.52	0.19 0.77 0.77
Crit Moves:	***	***
Green/Cycle:	0.00 0.43 0.43	0.18 0.61 0.61
Volume/Cap:	0.00 1.22 1.22	1.06 1.26 1.26
Delay/Veh:	0.0 128 128	108.1 130 129.9
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	0.0 128 128	108.1 130 129.9
LOS by Move:	A F F	F F F
HC2RAVGQ:	0 49 49	18 80 19
Note: Queue reported is the number of cars per lane.		







Tier 4B Conditions  
Weekday AM Peak Hour



Intersection	Impact Analysis Report Level Of Service		Base Del/ V/ LOS Veh C		Future Del/ V/ LOS Veh C		Change in
#1010 Claremont / Taraval / Dewey /	A	6.8	0.650	A	7.0	0.665	+ 0.015 V/C
#1020 Santa Clara / Portola / Vicent	C	29.7	0.837	D	40.2	0.960	+10.494 D/V
#1030 Junipero Serra / Sloat / West	F	89.5	1.076	F	95.9	1.094	+ 6.319 D/V
#1040 Junipero Serra / Ocean / Euclal	D	40.4	0.758	D	46.9	0.802	+ 6.482 D/V
#1050 Junipero Serra / Winston / Mer	C	34.6	0.632	D	38.3	0.772	+ 3.680 D/V
#1060 Junipero Serra / Holloway	C	32.7	0.675	D	36.9	0.716	+ 4.265 D/V
#1070 Junipero Serra / 19th	E	72.7	0.942	E	68.6	0.968	-4.059 D/V
#1075 Junipero Serra / Chumaseo	A	5.8	0.757	B	19.4	0.997	+13.632 D/V
#1080 Junipero Serra / I-280 NB On-R	D	40.2	0.788	D	40.5	0.801	+ 0.279 D/V
#1090 Junipero Serra / I-280 SB On-R	C	20.4	0.568	C	20.4	0.620	-0.007 D/V
#1100 19th / Taraval	C	25.5	0.815	C	28.9	0.829	+ 3.420 D/V
#1110 19th / Sloat	F	107.3	1.464	F	119.3	1.508	+11.977 D/V
#1120 19th / Ocean	D	41.4	1.084	D	46.1	1.093	+ 4.780 D/V
#1130 19th / Eucalyptus	C	21.0	0.831	C	23.1	0.865	+ 2.060 D/V
#1140 19th / Winston	D	50.0	0.977	F	84.1	1.322	+34.127 D/V
#1150 19th / Buckingham	F	57.6	0.679	F	77.7	0.826	+20.071 D/V
#1160 19th / Holloway	A	6.2	0.696	E	62.2	0.786	+55.967 D/V
#1170 19th / Crespi	E	57.5	0.762	E	75.7	0.752	+18.286 D/V
#1181 Chumaseo / Brotherhood	B	13.8	0.640	B	19.7	0.703	+ 5.962 D/V
#1182 Thomas More / brotherhood	B	15.7	0.611	C	23.0	0.747	+ 7.334 D/V
#1190 Sunset / Taraval	C	21.0	0.717	D	43.0	0.799	+21.964 D/V
#1200 Sunset / Ocean	B	12.0	0.605	B	13.7	0.664	+ 1.687 D/V
#1210 Skyline / Sloat / 39th	C	17.0	0.684	C	17.5	0.692	+ 0.009 V/C
#1221 Skyline / Lake Merced (WBR)	C	15.1	0.209	C	15.1	0.209	+ 0.010 D/V

Intersection	Base Del/ LOS Veh C		Future Del/ LOS Veh C		Change in
#1222 Skyline / Lake Merced (WBLT)	F	52.5 0.379	F	52.8 0.381	+ 0.284 D/V
#1230 Sunset / Lake Merced	F	154.0 0.594	F	425.0 1.103	+270.952 D/V
#1240 Lake Merced / Winston	C	28.8 0.691	F	96.8 0.805	+68.066 D/V
#1250 Lake Merced / Font	E	61.6 0.746	F	160.6 1.400	+98.995 D/V
#1261 Lake Merced / Vidal	D	45.6 0.728	D	45.2 0.925	-0.430 D/V
#1262 Lake Merced / Acevedo	D	47.6 0.738	D	43.3 0.962	-4.329 D/V
#1263 Lake Merced / Higuera	E	69.0 0.670	D	37.9 0.994	-31.032 D/V
#1264 Lake Merced / Gonzalez	D	44.8 0.742	D	47.1 1.036	+ 2.252 D/V
#1270 Lake Merced / Brotherhood	D	54.5 1.511	F	122.0 1.784	+67.580 D/V

Level of Service Computation Report  
FHWA Roundabout Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1010 Claremont / Taraval / Dewey / Kensington  
\*\*\*\*\*  
Average Delay (sec/veh): 7.0 Level of Service: A  
\*\*\*\*\*  
Street Name: Claremont South Bound East Bound West Bound  
Approach: North Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Yield Sign Yield Sign Yield Sign Yield Sign Yield Sign  
Lanes: 1 1 1 1 1 1  
Volume Module:  
Base Vol: 3 7 221 10 60 37 1 231 27 313 337 94  
Growth Adj: 1.03 1.02 1.02 1.02 1.03 1.02 1.01 1.02 1.03 1.04 1.03  
Initial Bse: 3 7 224 10 61 38 1 233 27 323 351 87  
Added Vol: 1 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 4 7 229 10 61 38 1 233 27 340 351 87  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 4 7 234 10 63 39 1 238 28 347 358 88  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 4 7 234 10 63 39 1 238 28 347 358 88  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Final Volume: 4 7 234 10 63 39 1 238 28 347 358 88  
PCE Module:  
AutoPCE: 4 7 234 10 63 39 1 238 28 347 358 88  
TruckPCE: 0 0 0 0 0 0 0 0 0 0 0  
ComboPCE: 0 0 0 0 0 0 0 0 0 0 0  
BicyclePCE: 0 0 0 0 0 0 0 0 0 0 0  
AdjVolume: 4 7 234 10 63 39 1 238 28 347 358 88  
Delay Module: >> Time Period: 0.25 hours <<  
CircVolume: 250 709 420 13  
MaxVolume: 1065 817 973 1193  
PedVolume: 0 0 0 0  
AdjMaxVol: 1065 817 973 1193  
ApproachVol: 246 793 267 793  
ApproachV/C: 0.23 0.14 0.27 0.66  
ApproachDel: 4.4 5.1 5.1 8.8  
ApproachLOS: A A A A  
Queue: 0.9 0.5 1.1 5.4

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1020 Santa Clara / Portola / Vicente  
\*\*\*\*\*  
Cycle (sec): 80 Critical Vol./Cap.(X): 0.960  
Loss Time (sec): 11 Average Delay (sec/veh): 40.2  
Optimal Cycle: 124 Level of Service: D  
\*\*\*\*\*  
Street Name: Santa Clara / Vicente Portola  
Approach: North Bound South Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 23 23 23 23 23 23 9 36 36 9 36 36  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 1 0 0 0 0 1 0 0 1 0 1 0 1 0  
Volume Module:  
Base Vol: 18 264 86 82 202 30 24 1057 17 120 859 81  
Growth Adj: 1.05 1.04 1.09 1.12 1.10 1.08 1.09 1.13 1.12 1.08 1.05 1.05  
Initial Bse: 19 276 94 92 223 32 26 1197 19 129 903 85  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 19 276 94 118 223 36 26 1328 19 129 982 85  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 19 281 96 120 227 37 27 1355 19 132 1002 87  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 19 281 96 120 227 37 27 1355 19 132 1002 87  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Final Volume: 19 281 96 120 227 37 27 1355 19 132 1002 87  
Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.92 0.92 0.92 0.56 0.56 0.56 0.93 0.93 0.93 0.93 0.92 0.92  
Lanes: 0.05 0.71 0.24 0.31 0.59 0.10 1.00 1.97 0.03 1.00 1.84 0.16  
Final Sat.: 85 1248 424 330 625 102 1769 3481 50 1769 3217 278  
Capacity Analysis Module:  
Vol/Sat: 0.23 0.23 0.23 0.36 0.36 0.36 0.02 0.39 0.39 0.07 0.31 0.31  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.30 0.30 0.30 0.30 0.30 0.30 0.11 0.45 0.45 0.11 0.45 0.45  
Volume/Cap: 0.75 0.75 0.75 1.21 1.21 1.21 0.13 0.87 0.87 0.66 0.69 0.69  
Delay/Veh: 34.8 34.8 34.8 149.4 149.4 149.4 26.4 26.4 26.4 50.1 20.1 20.1  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 34.8 34.8 34.8 149.4 149.4 149.4 26.4 26.4 26.4 50.1 20.1 20.1  
LOS by Move: C C C F F F C C C D C C  
HCM2kAvgQ: 11 11 21 21 21 21 19 19 4 12 12  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1030 Junipero Serra / Sloat / West Portal / St. Francis  
Cycle (sec): 105 Critical Vol./Cap.(X): 1.094  
Loss Time (sec): 16 Average Delay (sec/veh): 95.9  
Optimal Cycle: 180 Level Of Service: F

Street Name: Junipero Serra / West Portal Sloat / St. Francis  
Approach: North Bound South Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Protected Permitted Split Phase  
Rights: Include Include Include  
Min. Green: 16 48 48 27 27 27 20 20 20 20 20 20  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 3 0 1 1 0 0 0 2 1 0 3 0 1 0 1 0 1 0

Volume Module:  
Base Vol: 972 1137 20 0 1092 176 646 416 322 23 347 8  
Growth Adj: 1.16 1.14 1.16 1.14 1.09 1.14 1.16 1.19 1.14 1.14 1.19 1.16  
Initial Bse: 1129 1292 23 0 1192 200 750 494 367 26 412 9  
Added Vol: 22 110 0 0 53 0 2 0 7 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 1151 1402 23 0 1245 200 752 494 374 26 412 9  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 1174 1431 24 0 1271 205 768 504 0 27 420 9  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 1174 1431 24 0 1271 205 768 504 0 27 420 9  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 1174 1431 24 0 1271 205 768 504 0 27 420 9

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.89 0.92 0.92 1.00 0.88 0.88 0.89 0.97 1.00 0.93 0.93 0.93  
Lanes: 3.00 1.97 0.03 0.00 2.58 0.42 3.00 1.00 1.00 0.12 1.84 0.04  
Final Sat.: 5096 3438 57 0 4329 697 5096 1843 1900 206 3237 73

Capacity Analysis Module:  
Vol/Sat: 0.23 0.42 0.42 0.00 0.29 0.29 0.15 0.27 0.00 0.13 0.13 0.13  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.18 0.44 0.44 0.00 0.26 0.26 0.22 0.22 0.00 0.19 0.19 0.19  
Volume/Cap: 1.26 0.95 0.95 0.00 1.14 1.14 0.69 1.26 0.00 0.68 0.68 0.68  
Delay/Veh: 168.3 37.1 37.1 0.0 113 112.5 41.5 177 0.0 45.1 45.1 45.1  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 168.3 37.1 37.1 0.0 113 112.5 41.5 177 0.0 45.1 45.1 45.1  
LOS by Move: F D D A F F D F A D D D  
HCM2kAVGQ: 23 23 23 0 29 29 9 31 0 8 8 8  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1040 Junipero Serra / Ocean / Eucalyptus  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.802  
Loss Time (sec): 14 Average Delay (sec/veh): 46.9  
Optimal Cycle: 100 Level Of Service: D

Street Name: Junipero Serra Ocean / Eucalyptus  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Protected Protected Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 11 43 43 16 48 48 27 27 27 27 27 27  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 1 0 2 1 0 2 0 2 1 0 0 1 0 1 0 1 0 1 0 1

Volume Module:  
Base Vol: 189 1678 46 326 1061 90 85 384 45 54 368 324  
Growth Adj: 1.16 1.14 1.16 1.14 1.09 1.14 1.16 1.19 1.14 1.14 1.19 1.16  
Initial Bse: 220 1907 53 371 1159 103 99 456 51 62 437 376  
Added Vol: 0 107 4 14 42 4 2 16 0 1 33 23  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 220 2014 57 385 1201 107 101 472 51 63 470 399  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 224 2055 59 393 1225 109 103 481 52 64 479 407  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 224 2055 59 393 1225 109 103 481 52 64 479 407  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 224 2055 59 393 1225 109 103 481 52 64 479 407

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.92 0.88 0.88 0.91 0.89 0.89 0.60 0.60 0.83 0.96 0.96 0.83  
Lanes: 1.00 2.92 0.08 2.00 2.76 0.24 0.35 1.65 1.00 0.12 0.88 1.00  
Final Sat.: 1751 4873 139 3466 4659 413 403 1889 1583 214 1605 1583

Capacity Analysis Module:  
Vol/Sat: 0.13 0.42 0.42 0.11 0.26 0.26 0.25 0.25 0.03 0.30 0.30 0.26  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.11 0.43 0.43 0.16 0.48 0.48 0.27 0.27 0.38 0.27 0.27 0.43  
Volume/Cap: 1.16 0.98 0.98 0.71 0.55 0.55 0.94 0.94 0.09 1.11 1.11 0.60  
Delay/Veh: 160.1 39.5 39.5 47.3 15.5 15.5 60.4 60.4 20.2 109.2 109 25.7  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 160.1 39.5 39.5 47.3 15.5 15.5 60.4 60.4 20.2 109.2 109 25.7  
LOS by Move: F D D D B B E C F C  
HCM2kAVGQ: 10 23 23 5 8 8 14 14 1 27 27 10  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.



19th Ave CS  
Tier 4a

## Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1060 Junipero Serra / Holloway

Cycle (sec): 100 Critical Vol./Cap.(X): 0.716

Loss Time (sec): 14 Average Delay (sec/veh): 36.9

Optimal Cycle: 100 Level Of Service: D

Street Name: Junipero Serra Holloway

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected

Rights: Include Include Include Include

Min. Green: 19 39 39 19 39 39 28 28 28 28

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 0 1 0 1

Volume Module:

Base Vol: 234 1520 60 114 956 84 163 106 16 162 129 118

Growth Adj: 1.08 1.14 1.07 1.05 1.09 1.06 1.07 1.01 1.05 1.06 1.02 1.08

Initial Bse: 253 1728 64 120 1044 89 175 107 17 171 132 128

Added Vol: 63 59 2 12 5 -18 25 -12 0 -6 -12 14

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 316 1787 66 132 1049 71 200 95 17 165 120 142

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 322 1823 68 135 1070 72 204 97 17 169 123 144

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 322 1823 68 135 1070 72 204 97 17 169 123 144

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 322 1823 68 135 1070 72 204 97 17 169 123 144

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 0.93 0.89 0.89 0.93 0.88 0.88 0.65 0.98 0.83 0.68 0.98 0.83

Lanes: 1.00 2.89 0.11 1.00 2.81 0.19 1.00 1.00 1.00 1.00 1.00 1.00

Final Sat: 1769 4877 181 1769 4719 319 1227 1862 1583 1289 1862 1583

Capacity Analysis Module:

Vol/Sat: 0.18 0.37 0.37 0.08 0.23 0.23 0.17 0.05 0.01 0.13 0.07 0.09

Crit Moves: 0.19 0.39 0.39 0.19 0.39 0.39 0.28 0.28 0.28 0.28 0.28 0.28

Green/Cycle: 0.19 0.39 0.39 0.19 0.39 0.39 0.59 0.19 0.04 0.47 0.24 0.33

Volume/Cap: 0.96 0.96 0.96 0.40 0.58 0.58 0.59 0.19 0.04 0.47 0.24 0.33

Delay/Veh: 79.9 39.5 39.5 39.0 23.0 23.0 38.5 28.1 26.4 34.1 28.8 30.5

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 79.9 39.5 39.5 39.0 23.0 23.0 38.5 28.1 26.4 34.1 28.8 30.5

LOS by Move: E D D D C C C C C C C C

HCM2kAvgQ: 10 20 20 3 9 9 6 2 0 5 3 4

Note: Queue reported is the number of cars per lane.

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

19th Ave CS  
Tier 4a

## Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1050 Junipero Serra / Winston / Mercedes

Cycle (sec): 100 Critical Vol./Cap.(X): 0.772

Loss Time (sec): 14 Average Delay (sec/veh): 38.3

Optimal Cycle: 100 Level Of Service: D

Street Name: Junipero Serra Winston / Mercedes

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected

Rights: Include Include Include Include

Min. Green: 19 40 40 19 40 40 27 27 27 27

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 2 1 0 1 0 1 0 1 1 0 1 0 1

Volume Module:

Base Vol: 186 1681 29 103 1024 72 80 63 73 64 147 62

Growth Adj: 1.07 1.14 1.16 1.14 1.09 1.05 1.16 1.19 1.14 1.05 1.00 1.07

Initial Bse: 199 1911 34 117 1118 75 93 75 83 67 147 66

Added Vol: 56 38 4 1 -24 65 73 48 29 -6 82 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 255 1949 38 118 1094 140 166 123 112 61 229 66

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 260 1988 38 121 1117 143 169 125 115 62 234 68

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 260 1988 38 121 1117 143 169 125 115 62 234 68

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 260 1988 38 121 1117 143 169 125 115 62 234 68

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 0.93 0.89 0.89 0.93 0.88 0.88 0.46 0.98 0.83 0.64 0.98 0.83

Lanes: 1.00 2.94 0.06 1.00 2.66 0.34 1.00 1.00 1.00 1.00 1.00 1.00

Final Sat: 1769 4972 96 1769 4429 568 868 1862 1583 1216 1862 1583

Capacity Analysis Module:

Vol/Sat: 0.15 0.40 0.40 0.07 0.25 0.25 0.20 0.07 0.07 0.05 0.13 0.04

Crit Moves: 0.19 0.40 0.40 0.19 0.40 0.40 0.27 0.27 0.27 0.27 0.27 0.27

Green/Cycle: 0.19 0.40 0.40 0.19 0.40 0.40 0.72 0.25 0.27 0.19 0.46 0.16

Volume/Cap: 0.77 1.00 1.00 0.36 0.63 0.63 0.72 0.25 0.27 0.19 0.46 0.16

Delay/Veh: 54.3 46.8 46.8 38.2 23.0 23.0 50.7 29.8 30.3 29.4 33.5 28.6

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 54.3 46.8 46.8 38.2 23.0 23.0 50.7 29.8 30.3 29.4 33.5 28.6

LOS by Move: D D D D C C C C C C C C

HCM2kAvgQ: 7 25 25 3 10 10 4 3 3 2 6 2

Note: Queue reported is the number of cars per lane.

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

Tier 4b AM		Thu Feb 4, 2010 15:03:59										Page 9-1	
19th Ave CS													
Tier 4a													
Level Of Service Computation Report													
2000 HCM Operations Method (Future Volume Alternative)													
Intersection #1070 Junipero Serra / 19th													
Cycle (sec): 110 Critical Vol./Cap.(X): 0.968													
Loss Time (sec): 0 Average Delay (sec/veh): 68.6													
Optimal Cycle: 180 Level Of Service: E													
Street Name: Junipero Serra													
Approach: North Bound South Bound East Bound West Bound													
Movement: L - T - R L - T - R L - T - R L - T - R													
Control: Split Phase Split Phase Permitted Permitted													
Rights: Include Ignore Ovl Include													
Min. Green: 46 46 18 18 18 9 9 9 9 9 9 9 9													
Y+R: 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0													
Lanes: 3 0 1 1 0 0 0 4 0 1 0 0 1 0 3 0 0 0 1 0													
Volume Module:													
Base Vol: 2208 1679 8 0 1210 4 0 71 3047 0 56 62													
Growth Adj: 1.13 1.14 1.12 1.10 1.09 1.11 1.12 1.10 1.10 1.11 1.12 1.13													
Initial Bse: 2494 1908 9 0 1321 4 0 78 3345 0 63 70													
Added Vol: 61 108 3 0 -1 0 0 21 119 0 0 15													
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0													
Initial Fut: 2555 2016 12 0 1320 4 0 99 3464 0 63 85													
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00													
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.00 0.98 0.98 0.98 0.98 0.98 0.98													
PHF Volume: 2607 2058 12 0 1347 0 0 101 3535 0 64 87													
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0													
Reduced Vol: 2607 2058 12 0 1347 0 0 101 3535 0 64 87													
PCE Adj: 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00													
MLF Adj: 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00													
FinalVolume: 2607 2058 12 0 1347 0 0 101 3535 0 64 87													
Saturation Flow Module:													
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900													
Adjustment: 0.99 0.93 0.93 1.00 0.89 1.00 1.00 0.98 0.81 1.00 0.90 0.90													
Lanes: 3.00 1.99 0.01 0.00 4.00 1.00 0.00 1.00 3.00 0.00 0.43 0.57													
Final Sat: 5662 3513 21 0 6778 1900 0 1862 4596 0 730 987													
Capacity Analysis Module:													
Vol/Sat: 0.46 0.59 0.59 0.00 0.20 0.00 0.00 0.05 0.77 0.00 0.09 0.09													
Crit Moves: ****													
Green/Cycle: 0.50 0.50 0.50 0.21 0.21 0.21 0.12 0.12 0.67 0.12 0.12 0.12													
Volume/Cap: 0.93 1.18 1.18 0.00 0.96 0.00 0.00 0.44 1.15 0.00 0.71 0.71													
Delay/Veh: 26.7 109 108.5 0.0 58.7 0.0 0.0 50.7 80.6 0.0 64.6 64.6													
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00													
AdjDel/Veh: 26.7 109 108.5 0.0 58.7 0.0 0.0 50.7 80.6 0.0 64.6 64.6													
LOS by Move: C F F A E A A D F A E E													
HCM2kAvgQ: 28 57 57 0 15 0 0 4 69 0 6 6													
Note: Queue reported is the number of cars per lane.													

Tier 4b AM		Thu Feb 4, 2010 15:03:59										Page 10-1			
19th Ave CS															
Tier 4a															
Level Of Service Computation Report															
2000 HCM Operations Method (Future Volume Alternative)															
Intersection #1075 Junipero Serra / Chumaseo															
Cycle (sec):	90	Critical Vol./Cap.(X):										0.997			
Loss Time (sec):	10	Average Delay (sec/veh):										19.4			
Optimal Cycle:	176	Level Of Service:										B			
Street Name: Junipero Serra Chumaseo															
Approach:	North Bound			South Bound			East Bound			West Bound					
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Protected			Protected			Split Phase			Split Phase					
Rights:	Include			Include			Ovl			Include					
Min. Green:	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	4	0	0	0	3	1	0	0	0	0	1	0	0
Volume Module:															
Base Vol:	8	3895	0	0	4214	75	0	0	107	0	0	0	0	0	0
Growth Adj:	1.13	1.14	1.12	1.10	1.03	1.11	1.00	1.00	1.05	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	9	4440	0	0	4340	83	0	0	112	0	0	0	0	0	0
Added Vol:	66	172	0	0	180	-62	0	0	206	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	75	4612	0	0	4520	21	0	0	318	0	0	0	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	77	4706	0	0	4613	22	0	0	325	0	0	0	0	0	0
Reduc Vol:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	77	4706	0	0	4613	22	0	0	325	0	0	0	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	77	4706	0	0	4613	22	0	0	325	0	0	0	0	0	0
Saturation Flow Module:															
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.89	1.00	1.00	0.89	0.89	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	4.00	0.00	0.00	3.98	0.02	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
Final Sat:	1769	6778	0	0	6739	32	0	0	1611	0	0	0	0	0	0
Capacity Analysis Module:															
Vol/Sat:	0.04	0.69	0.00	0.00	0.68	0.68	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00
Crit Moves:	****														
Green/Cycle:	0.11	0.80	0.00	0.00	0.69	0.69	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00
Volume/Cap:	0.39	0.87	0.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
Delay/Veh:	38.4	7.7	0.0	0.0	26.3	26.3	0.0	0.0	85.3	0.0	0.0	0.0	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	38.4	7.7	0.0	0.0	26.3	26.3	0.0	0.0	85.3	0.0	0.0	0.0	0.0	0.0	0.0
LOS by Move:	D	A	A	A	C	C	A	A	F	A	A	A	A	A	A
HCM2kAvgQ:	2	27	0	0	36	36	0	0	14	0	0	0	0	0	0
Note: Queue reported is the number of cars per lane.															





Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1100 19th / Taraval  
\*\*\*\*\*  
Cycle (sec): 90 Critical Vol./Cap.(X): 0.829  
Loss Time (sec): 10 Average Delay (sec/veh): 28.9  
Optimal Cycle: 89 Level Of Service: C  
\*\*\*\*\*

Street Name: 19th Taraval  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 56 56 56 56 23 23 23 23  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 1 1 0 0 1 0 0 1 0 1 0

Volume Module:  
Base Vol: 0 2276 57 2 2656 58 2 201 50 0 228 50  
Growth Adj: 1.10 1.14 1.06 1.04 1.09 1.08 1.06 1.00 1.04 1.08 1.07 1.10  
Initial Bse: 0 2587 61 2 2900 63 2 201 52 0 244 55  
Added Vol: 0 146 3 0 60 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2733 64 2 2960 63 2 201 52 0 244 55  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2789 65 2 3021 64 2 205 53 0 249 56  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2789 65 2 3021 64 2 205 53 0 249 56  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2789 65 2 3021 64 2 205 53 0 249 56

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 0.84 0.84 0.86 0.86 0.86 0.86 0.95 0.90 0.90  
Lanes: 0.00 2.93 0.07 0.01 2.93 0.06 0.02 1.57 0.41 0.00 1.63 0.37  
Final Sat.: 0 4953 115 3 4662 99 27 2571 665 0 2805 634

Capacity Analysis Module:  
Vol/Sat: 0.00 0.56 0.56 0.65 0.65 0.65 0.08 0.08 0.08 0.00 0.09 0.09  
Crit Moves: 0.00 0.63 0.63 0.63 0.63 0.26 0.26 0.26 0.26 0.00 0.26 0.26  
Green/Cycle: 0.00 0.89 0.89 1.02 1.02 1.02 0.31 0.31 0.31 0.00 0.35 0.35  
Volume/Cap: 0.0 18.0 18.0 39.1 39.1 39.1 28.1 28.1 28.1 0.0 28.5 28.5  
Delay/Veh: 0.0 18.0 18.0 18.0 18.0 18.0 18.1 18.1 18.1 0.0 18.1 18.1  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 18.0 18.0 39.1 39.1 39.1 28.1 28.1 28.1 0.0 28.5 28.5  
LOS by Move: A B B D D C C C A C C  
HCM2KavgQ: 0 28 28 42 42 42 3 3 3 0 4 4  
\*\*\*\*\*  
Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1110 19th / Sloat  
\*\*\*\*\*  
Cycle (sec): 90 Critical Vol./Cap.(X): 1.508  
Loss Time (sec): 9 Average Delay (sec/veh): 119.3  
Optimal Cycle: 180 Level Of Service: F  
\*\*\*\*\*

Street Name: 19th Sloat  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 33 33 33 12 49 49 4 32 32 23 23 23  
Y+R: 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0  
Lanes: 0 0 2 1 0 1 0 2 1 0 1 1 1 0 0 0 3 0 1

Volume Module:  
Base Vol: 0 1964 25 312 2778 127 247 1029 62 0 873 403  
Growth Adj: 1.16 1.14 1.16 1.14 1.09 1.14 1.16 1.19 1.14 1.14 1.19 1.16  
Initial Bse: 0 2232 29 355 3034 145 287 1221 71 0 1036 468  
Added Vol: 0 110 2 4 35 5 7 3 0 0 13 23  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2342 31 359 3069 150 294 1224 71 0 1049 491  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2390 32 367 3131 153 300 1249 72 0 1070 501  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2390 32 367 3131 153 300 1249 72 0 1070 501  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2390 32 367 3131 153 300 1249 72 0 1070 501

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 0.93 0.89 0.89 0.58 0.88 0.88 1.00 0.89 0.83  
Lanes: 0.00 2.96 0.04 1.00 2.86 0.14 1.00 2.84 0.16 1.00 3.00 1.00  
Final Sat.: 0 5007 66 1769 4813 235 1106 4729 273 0 5083 1583

Capacity Analysis Module:  
Vol/Sat: 0.00 0.48 0.48 0.21 0.65 0.65 0.27 0.26 0.26 0.00 0.21 0.32  
Crit Moves: 0.00 0.37 0.37 0.15 0.52 0.52 0.38 0.38 0.38 0.00 0.26 0.26  
Green/Cycle: 0.00 1.30 1.30 1.39 1.26 1.26 0.75 0.69 0.69 0.00 0.82 1.24  
Volume/Cap: 0.0 166 166.3 237.4 137 137.5 36.1 24.8 24.8 0.0 37.6 160.4  
Delay/Veh: 0.0 166 166.3 237.4 137 137.5 36.1 24.8 24.8 0.0 37.6 160.4  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 166 166.3 237.4 137 137.5 36.1 24.8 24.8 0.0 37.6 160.4  
LOS by Move: A F F F F F D C A D F  
HCM2KavgQ: 0 49 49 25 66 66 10 12 12 0 13 29  
\*\*\*\*\*  
Note: Queue reported is the number of cars per lane.

Tier 4b AM	Thu Feb 4, 2010 15:03:59	Page 15-1
19th Ave CS		
Tier 4a		
Level Of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1120 19th / Ocean		
Cycle (sec):	90	Critical Vol./Cap.(X): 1.093
Loss Time (sec):	9	Average Delay (sec/veh): 46.1
Optimal Cycle:	180	Level Of Service: D
Street Name: 19th Ocean		
Approach:	North Bound	East Bound
Movement:	L - T - R	L - T - R
Control:	Permitted	Permitted
Rights:	WideBypass	Include
Min. Green:	54 54 54	26 26 26
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 1 1 0 0 0	1 0 0 1 0 0
Volume Module:		
Base Vol:	2 1809 45	0 2766 187
Growth Adj:	1.16 1.14 1.16	1.14 1.16 1.19
Initial Bse:	2 2056 52	0 3020 213
Added Vol:	0 112 0	0 35 0
PasserByVol:	0 0 0	0 0 0
Initial Fut:	2 2168 52	0 3055 213
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	2 2212 53	0 3118 217
Reduc Vol:	0 0 0	0 0 0
Reduced Vol:	2 2212 53	0 3118 217
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00
FinalVolume:	2 2212 53	0 3118 217
Saturation Flow Module:		
Sat/Lane:	1900 1900 1900	1900 1900 1900
Adjustment:	0.78 0.78 0.78	1.00 0.88 0.88
Lanes:	0.01 2.92 0.07	0.00 2.80 0.20
Final Sat:	5 4336 105	0 4704 328
Capacity Analysis Module:		
Vol/Sat:	0.51 0.51 0.51	0.00 0.66 0.66
Crit Moves:	0.60 0.60 0.60	0.29 0.29 0.29
Green/Cycle:	0.60 0.60 0.60	0.29 0.29 0.29
Volume/Cap:	0.85 0.85 0.85	0.00 1.10 1.10
Delay/Veh:	12.1 12.1 12.1	0.0 63.0 63.0
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	12.1 12.1 12.1	0.0 63.0 63.0
LOS by Move:	B B B	A E E
HCM2kAvgQ:	16 16 16	0 46 46
Note: Queue reported is the number of cars per lane.		

Tier 4b AM	Thu Feb 4, 2010 15:03:59	Page 16-1
19th Ave CS		
Tier 4a		
Level Of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1130 19th / Eucalyptus		
Cycle (sec):	90	Critical Vol./Cap.(X): 0.865
Loss Time (sec):	9	Average Delay (sec/veh): 23.1
Optimal Cycle:	90	Level Of Service: C
Street Name: 19th Eucalyptus		
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Permitted	Permitted
Rights:	Include	Include
Min. Green:	56 56 56	56 56 56
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 2 1 0 0	0 0 2 1 0 0
Volume Module:		
Base Vol:	0 1848 21	0 2818 58
Growth Adj:	1.16 1.14 1.16	1.14 1.09 1.14
Initial Bse:	0 2100 24	0 3077 66
Added Vol:	0 105 3	0 19 16
PasserByVol:	0 0 0	0 0 0
Initial Fut:	0 2205 27	0 3096 82
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	0 2250 28	0 3159 84
Reduc Vol:	0 0 0	0 0 0
Reduced Vol:	0 2250 28	0 3159 84
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00
FinalVolume:	0 2250 28	0 3159 84
Saturation Flow Module:		
Sat/Lane:	1900 1900 1900	1900 1900 1900
Adjustment:	1.00 0.89 0.89	1.00 0.89 0.89
Lanes:	0.00 2.96 0.04	0.00 2.92 0.08
Final Sat:	0 5011 62	0 4932 131
Capacity Analysis Module:		
Vol/Sat:	0.00 0.45 0.45	0.00 0.64 0.64
Crit Moves:	0.62 0.62 0.62	0.62 0.62 0.62
Green/Cycle:	0.62 0.62 0.62	0.62 0.62 0.62
Volume/Cap:	0.00 0.72 0.72	0.00 1.03 1.03
Delay/Veh:	0.0 7.5 7.5	0.0 33.0 33.0
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	0.0 7.5 7.5	0.0 33.0 33.0
LOS by Move:	A A A	A C C
HCM2kAvgQ:	0 11 11	0 36 36
Note: Queue reported is the number of cars per lane.		

Tier 4b AM		Thu Feb 4, 2010 15:03:59				Page 17-1			
		19th Ave CS							
		Tier 4a							
Level of Service Computation Report									
2000 HCM Operations Method (Future Volume Alternative)									
Intersection #1140 19th / Winston									
*****									
Cycle (sec):	90	Critical Vol./Cap.(X):		1.322					
Loss Time (sec):	13	Average Delay (sec/veh):		84.1					
Optimal Cycle:	180	Level of Service:		F					
*****									
Street Name:	19th		Winston						
Approach:	North Bound		South Bound		East Bound		West Bound		
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Protected	Protected	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted
Rights:	Include	Include	Include	Include	AddLane	AddLane	AddLane	AddLane	Include
Min. Green:	15	43	43	43	43	18	18	18	18
Y+R:	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0
Lanes:	2	0	2	1	0	0	3	0	1
						1	1	1	0
						1	1	0	1
						0	1	0	1
*****									
Volume Module:									
Base Vol:	386	1920	59	0	2985	60	56	164	171
Growth Adj:	1.06	1.14	1.00	1.00	1.09	1.04	1.00	1.00	1.00
Initial Bse:	409	2182	59	0	3260	62	56	164	171
Added Vol:	83	43	-30	0	-34	65	64	181	29
PasserByVol:	0	0	0	0	0	0	0	0	0
Initial Fut:	492	2225	29	0	3226	127	120	345	200
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	502	2271	30	0	3291	130	122	352	204
Reduced Vol:	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	502	2271	30	0	3291	130	122	352	204
*****									
Saturation Flow Module:									
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.89	0.89	1.00	1.11	0.83	0.26	0.20	0.83
Lanes:	2.00	2.96	0.04	0.00	3.00	1.00	1.00	2.00	1.00
Final Sat:	3432	5008	65	0	6354	1583	502	754	1583
*****									
Capacity Analysis Module:									
Vol/Sat:	0.15	0.45	0.45	0.00	0.52	0.08	0.24	0.47	0.13
Crit Moves:	***	***	***	***	***	***	***	***	***
Green/Cycle:	0.17	0.48	0.48	0.48	0.48	0.48	0.20	0.20	0.20
Volume/Cap:	0.88	0.95	0.95	0.00	1.08	0.17	1.22	2.34	0.64
Delay/Veh:	53.7	27.7	27.7	0.0	63.2	11.2	155.6	652	42.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	53.7	27.7	27.7	0.0	63.2	11.2	155.6	652	42.8
LOS by Move:	D	C	C	A	E	B	F	F	F
HCM2kAvgQ:	7	21	21	0	50	2	9	19	6
*****									
Note: Queue reported is the number of cars per lane.									

Tier 4b AM

Thu Feb 4, 2010 15:03:59

Page 18-1

19th Ave CS

Tier 4a

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1150 19th / Buckingham

Average Delay (sec/veh): 1.8 Worst Case Level Of Service: F{ 77.7}

Street Name: 19th Buckingham

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Uncontrolled Uncontrolled

Rights: Include Include Include Include

Lanes: 0 0 3 0 0 0 3 0 1 0 0 0 0 1 0 0 0 0 0

Volume Module:

Base Vol: 0 2365 0 0 3145 61 0 0 122 0 0 0

Growth Adj: 1.00 1.14 1.04 1.02 1.09 1.00 1.04 1.00 1.02 1.00 1.00 1.00

Initial Bse: 0 2688 0 0 3434 61 0 0 124 0 0 0

Added Vol: 0 96 0 0 -28 59 0 0 29 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 2784 0 0 3406 120 0 0 153 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 2841 0 0 3476 122 0 0 156 0 0 0

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

FinalVolume: 0 2841 0 0 3476 122 0 0 156 0 0 0

Critical Gap Module:

Critical Gap:xxxxxx xxxxx xxxxx xxxxx xxxxx 6.9 xxxxx xxxxx xxxxx

FollowUpTime:xxxxxx xxxxx xxxxx xxxxx xxxxx 3.3 xxxxx xxxxx xxxxx

Capacity Module:

Conflict Vol: xxxxx xxxxx xxxxx xxxxx xxxxx 1159 xxxxx xxxxx xxxxx

Potent Cap.: xxxxx xxxxx xxxxx xxxxx xxxxx 189 xxxxx xxxxx xxxxx

Move Cap.: xxxxx xxxxx xxxxx xxxxx xxxxx 189 xxxxx xxxxx xxxxx

Volume/Cap: xxxxx xxxxx xxxxx xxxxx xxxxx 0.83 xxxxx xxxxx xxxxx

Level Of Service Module:

2Way95thQ: xxxxx xxxxx xxxxx xxxxx xxxxx 5.9 xxxxx xxxxx xxxxx

Control Del:xxxxxx xxxxx xxxxx xxxxx xxxxx 77.7 xxxxx xxxxx xxxxx

LOS by Move: \* \* \* \* \* F

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx

SharedQueue:xxxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx

Shrd ConDel:xxxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx

Shared LOS: \* \* \* \* \* \* \* \* \*

ApproachDel: xxxxxx 77.7 F

ApproachLOS: \* \* \* \* \*

Note: Queue reported is the number of cars per lane.



Tier 4b AM	Thu Feb 4, 2010 15:03:59	Page 19-1
19th Ave CS Tier 4a		
Level of Service Computation Report 2000 HCM Operations Method (Future Volume Alternative)		
*****		
Intersection #1160 19th / Holloway		
*****		
Cycle (sec):	110	Critical Vol./Cap.(X): 0.786
Loss Time (sec):	0	Average Delay (sec/veh): 62.2
Optimal Cycle:	79	Level of Service: E
*****		
Street Name:	19th	Holloway
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Permitted	Permitted
Rights:	Include	Include
Min. Green:	48 48 48	31 31 31
Y+R:	20.0 20.0 20.0	20.0 20.0 20.0
Lanes:	0 0 2 1 0	0 0 4 0 1
*****		
Volume Module:		
Base Vol:	0 2288 130	0 3078 138
Growth Adj:	1.07 1.14 1.18	1.16 1.09 1.05
Initial Bse:	0 2601 154	0 3361 144
Added Vol:	0 29 -21	0 -22 22
PasserByVol:	0 0 0	0 0 0
Initial Fut:	0 2630 133	0 3339 166
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	0 2683 135	0 3407 170
Reduced Vol:	0 0 0	0 0 0
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00
FinalVolume:	0 2683 135	0 3407 170
*****		
Saturation Flow Module:		
Sat/Lane:	1900 1900	1900 1900
Adjustment:	1.00 0.93	1.00 0.94
Lanes:	0.00 2.85	0.00 4.00
Final Sat:	0 5033 254	0 7117 1583
*****		
Capacity Analysis Module:		
Vol/Sat:	0.00 0.53	0.00 0.48
Crit Moves:	****	****
Green/Cycle:	0.47 0.47	0.47 0.47
Volume/Cap:	0.00 1.13	0.00 1.02
Delay/Veh:	0.0 89.6	0.0 44.1
User DelAdj:	1.00 1.00	1.00 1.00
AdjDel/Veh:	0.0 89.6	0.0 44.1
LOS by Move:	A F	A D
HCM2kAVGQ:	0 48 46	0 33 2
*****		
Note: Queue reported is the number of cars per lane.		

Tier 4b AM	Thu Feb 4, 2010 15:03:59	Page 20-1
19th Ave CS Tier 4a		
Level of Service Computation Report 2000 HCM Operations Method (Future Volume Alternative)		
*****		
Intersection #1170 19th / Crespi		
*****		
Cycle (sec):	110	Critical Vol./Cap.(X): 0.752
Loss Time (sec):	0	Average Delay (sec/veh): 75.7
Optimal Cycle:	75	Level of Service: E
*****		
Street Name:	19th	Crespi
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Permitted	Permitted
Rights:	Include	Include
Min. Green:	48 48 48	53 53 53
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 3 0 0	0 0 3 0 1
*****		
Volume Module:		
Base Vol:	0 2266 0	0 3060 110
Growth Adj:	1.14 1.14 1.05	1.02 1.09 1.12
Initial Bse:	0 2576 0	0 3342 123
Added Vol:	0 61 0	0 102 -43
PasserByVol:	0 0 0	0 0 0
Initial Fut:	0 2637 0	0 3444 80
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	0 2690 0	0 3514 0
Reduced Vol:	0 0 0	0 0 0
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00
FinalVolume:	0 2690 0	0 3514 0
*****		
Saturation Flow Module:		
Sat/Lane:	1900 1900	1900 1900
Adjustment:	1.00 0.89	1.00 0.89
Lanes:	0.00 3.00	0.00 3.00
Final Sat:	0 5083 0	0 5083 1900
*****		
Capacity Analysis Module:		
Vol/Sat:	0.00 0.53	0.00 0.69
Crit Moves:	****	****
Green/Cycle:	0.47 0.47	0.61 0.61
Volume/Cap:	0.00 1.12	0.00 1.13
Delay/Veh:	0.0 83.2	0.0 72.8
User DelAdj:	1.00 1.00	1.00 1.00
AdjDel/Veh:	0.0 83.2	0.0 72.8
LOS by Move:	A F	A A
HCM2kAVGQ:	0 50 0	0 58 0
*****		
Note: Queue reported is the number of cars per lane.		

19th Ave CS  
Tier 4a

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1181 Chumasero / Brotherhood  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.703  
Loss Time (sec): 8 Average Delay (sec/veh): 19.7  
Optimal Cycle: 91 Level Of Service: B  
\*\*\*\*\*

Street Name: Chumasero Brotherhood  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Split Phase Split Phase Protected Permitted  
Rights: Include Include Include Include  
Min. Green: 0 0 15 15 15 21 47 47 21 47 47  
Y+R: 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0  
Lanes: 0 0 1 0 0 0 0 1 0 0 2 0 0 0 2 1 0

Volume Module:  
Base Vol: 0 0 145 0 54 26 1538 0 0 1684 176  
Growth Adj: 1.08 1.06 1.07 1.01 1.00 1.02 1.07 1.08 1.01 1.02 1.09 1.08  
Initial Bse: 0 0 147 0 55 28 1657 0 0 1842 190  
Added Vol: 0 0 0 65 0 -14 -18 559 0 0 151 1  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 0 212 0 41 10 2216 0 0 1993 191  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 0 216 0 42 10 2261 0 0 2034 194  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 0 0 216 0 42 10 2261 0 0 2034 194  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 0 216 0 42 10 2261 0 0 2034 194

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.80 0.80 1.00 0.69 0.75 0.69 0.93 0.93 1.00 1.00 0.88 0.88  
Lanes: 0.00 1.00 0.00 0.84 0.00 0.16 1.00 2.00 0.00 0.00 2.74 0.26  
Final Sat.: 0 1520 0 1098 0 213 1769 3538 0 0 4579 438

Capacity Analysis Module:  
Vol/Sat: 0.00 0.00 0.00 0.20 0.00 0.20 0.01 0.64 0.00 0.00 0.44 0.44  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.00 0.00 0.22 0.00 0.22 0.21 0.70 0.00 0.00 0.49 0.49  
Volume/Cap: 0.00 0.00 0.00 0.90 0.00 0.90 0.03 0.91 0.00 0.00 0.90 0.90  
Delay/Veh: 0.0 0.0 0.0 71.4 0.0 71.4 31.5 9.4 0.0 0.0 24.1 24.1  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 0.0 0.0 71.4 0.0 71.4 31.5 9.4 0.0 0.0 24.1 24.1  
LOS by Move: A A A E A E C A A A C C  
HCM2kAvgQ: 0 0 0 11 0 11 0 21 0 0 25 25  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4a

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1182 Thomas More / Brotherhood  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.747  
Loss Time (sec): 8 Average Delay (sec/veh): 23.0  
Optimal Cycle: 96 Level Of Service: C  
\*\*\*\*\*

Street Name: Thomas More Brotherhood  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Split Phase Split Phase Protected Protected  
Rights: Include Include Include Include  
Min. Green: 20 20 20 0 0 0 21 47 47 21 47 47  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 1 0 0 0 0 0 0 0 2 1 0 1 0 3 0 0

Volume Module:  
Base Vol: 44 0 99 0 0 0 0 1613 70 175 1808 0  
Growth Adj: 1.08 1.06 1.07 1.01 1.00 1.02 1.07 1.08 1.01 1.02 1.09 1.08  
Initial Bse: 47 0 106 0 0 0 1737 71 179 1978 0  
Added Vol: 0 0 0 0 0 0 0 624 0 0 151 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 47 0 106 0 0 0 2361 71 179 2129 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 48 0 108 0 0 0 2410 72 183 2172 0  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 48 0 108 0 0 0 2410 72 183 2172 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 48 0 108 0 0 0 2410 72 183 2172 0

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.88 1.00 0.88 1.00 1.00 1.00 1.00 0.89 0.89 0.93 0.89 1.00  
Lanes: 0.31 0.00 0.69 0.00 0.00 0.00 0.00 2.91 0.09 1.00 3.00 0.00  
Final Sat.: 515 0 1149 0 0 0 0 4915 148 1769 5093 0

Capacity Analysis Module:  
Vol/Sat: 0.09 0.00 0.09 0.00 0.00 0.00 0.00 0.49 0.49 0.10 0.43 0.00  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.20 0.00 0.20 0.00 0.00 0.00 0.00 0.51 0.51 0.21 0.72 0.00  
Volume/Cap: 0.47 0.00 0.47 0.00 0.00 0.00 0.00 0.96 0.96 0.49 0.59 0.00  
Delay/Veh: 40.0 0.0 40.0 0.0 0.0 0.0 0.0 34.3 34.3 39.4 7.6 0.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 40.0 0.0 40.0 0.0 0.0 0.0 0.0 34.3 34.3 39.4 7.6 0.0  
LOS by Move: D A D A A A C C D A A  
HCM2kAvgQ: 5 0 5 0 0 0 0 29 29 5 12 0  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4aLevel of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1190 Sunset / TaravalCycle (sec): 60 Critical Vol./Cap.(X): 0.799  
Loss Time (sec): 10 Average Delay (sec/veh): 43.0  
Optimal Cycle: 60 Level Of Service: D  
\*\*\*\*\*Street Name: Sunset Taraval  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 29 29 29 29 21 21 21 21  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 2 1 0 0 1 0 1 0 0 1 0Volume Module:  
Base Vol: 0 2021 17 0 1965 11 79 190 53 83 169 38  
Growth Adj: 1.10 1.12 1.06 1.05 1.08 1.01 1.05 1.08 1.08 1.10  
Initial Bse: 0 2254 18 0 2130 12 84 193 56 90 183 42  
Added Vol: 0 342 0 0 212 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2596 18 0 2342 12 84 193 56 90 183 42  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2649 18 0 2390 12 86 197 57 92 186 43  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2649 18 0 2390 12 86 197 57 92 186 43  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2649 18 0 2390 12 86 197 57 92 186 43Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 1.00 0.89 0.95 0.95 0.54 0.95 0.95  
Lanes: 0.00 2.98 0.02 0.00 2.98 0.02 1.00 0.78 0.22 1.00 0.81 0.19  
Final Sat: 0 5043 35 0 5053 26 1097 1396 403 1035 1473 337Capacity Analysis Module:  
Vol/Sat: 0.00 0.53 0.53 0.00 0.47 0.47 0.08 0.14 0.14 0.09 0.13 0.13  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.48 0.48 0.00 0.48 0.48 0.35 0.35 0.35 0.35 0.35  
Volume/Cap: 0.00 1.09 1.09 0.00 0.98 0.98 0.22 0.40 0.40 0.25 0.36 0.36  
Delay/Veh: 0.0 62.2 62.2 0.0 29.0 29.0 15.1 16.7 16.7 15.6 16.1 16.1  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 62.2 62.2 0.0 29.0 29.0 15.1 16.7 16.7 15.6 16.1 16.1  
LOS by Move: A E C A C B B B B B  
HCM2kAVGQ: 0 33 33 0 24 24 1 4 4 1 3 3  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4aLevel of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1200 Sunset / OceanCycle (sec): 60 Critical Vol./Cap.(X): 0.664  
Loss Time (sec): 9 Average Delay (sec/veh): 13.7  
Optimal Cycle: 59 Level Of Service: B  
\*\*\*\*\*Street Name: Sunset Ocean  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 31 31 31 31 19 19 19 19  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 2 1 0 0 1 0 1 0 1 0 1Volume Module:  
Base Vol: 0 1318 12 0 1735 81 54 83 18 47 23 192  
Growth Adj: 1.00 1.00 1.07 1.11 1.07 1.01 1.07 1.15 1.11 1.01 1.00 1.00  
Initial Bse: 0 1318 13 0 1853 82 58 95 20 48 23 192  
Added Vol: 0 468 0 0 247 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 1786 13 0 2100 82 58 95 20 48 23 192  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 1822 13 0 2143 84 59 97 20 49 23 196  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 1822 13 0 2143 84 59 97 20 49 23 196  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 1822 13 0 2143 84 59 97 20 49 23 196Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 1.00 0.89 0.89 0.87 0.87 0.87 0.71 0.98 0.83  
Lanes: 0.00 2.98 0.02 0.00 2.89 0.11 0.33 0.55 0.12 1.00 1.00 1.00  
Final Sat: 0 5042 36 0 4863 190 550 908 190 1354 1862 1583Capacity Analysis Module:  
Vol/Sat: 0.00 0.36 0.36 0.00 0.44 0.44 0.11 0.11 0.11 0.04 0.01 0.12  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.53 0.53 0.00 0.53 0.53 0.32 0.32 0.32 0.32 0.32  
Volume/Cap: 0.00 0.68 0.68 0.00 0.83 0.83 0.34 0.34 0.34 0.11 0.04 0.39  
Delay/Veh: 0.0 11.6 11.6 0.0 14.7 14.7 17.4 17.4 17.4 15.1 14.3 18.3  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 11.6 11.6 0.0 14.7 14.7 17.4 17.4 17.4 15.1 14.3 18.3  
LOS by Move: A B B A B B B B B B B  
HCM2kAVGQ: 0 8 8 0 15 15 3 3 3 1 0 3  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.





Level of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1222 Skyline / Lake Merced (WBLT)  
\*\*\*\*\*  
Average Delay (sec/veh): 1.5 Worst Case Level of Service: F[ 52.8]  
\*\*\*\*\*  
Street Name: Skyline Lake Merced (WBLT)  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign  
Rights: Include Include Include Include  
Lanes: 1 0 1 1 0 0 0 2 0 1 0 0 0 0 0 1 0 1 0 0  
Volume Module:  
Base Vol: 5 814 90 0 423 33 0 0 0 0 43 5 0  
Growth Adj: 1.23 1.42 1.30 1.09 1.00 1.02 1.30 1.18 1.09 1.02 1.04 1.23  
Initial Bse: 6 1155 117 0 424 34 0 0 0 0 44 5 0  
Added Vol: 0 1 0 0 3 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 6 1156 117 0 427 34 0 0 0 0 44 5 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 6 1179 119 0 436 34 0 0 0 0 45 5 0  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0  
FinalVolume: 6 1179 119 0 436 34 0 0 0 0 45 5 0  
Critical Gap Module:  
Critical Gap: 4.1 xxxxx xxxxx xxxxx xxxxx xxxxx 6.8 6.5 xxxxx  
FollowUpTim: 2.2 xxxxx xxxxx xxxxx xxxxx xxxxx 3.5 4.0 xxxxx  
Capacity Module:  
Conflict Vol: 470 xxxxx xxxxx xxxxx xxxxx xxxxx 1470 1722 xxxxx  
Potent Cap.: 1088 xxxxx xxxxx xxxxx xxxxx xxxxx 118 88 xxxxx  
Move Cap.: 1088 xxxxx xxxxx xxxxx xxxxx xxxxx 118 88 xxxxx  
Volume/Cap: 0.01 xxxxx xxxxx xxxxx xxxxx xxxxx 0.38 0.06 xxxxx  
Level of Service Module:  
2Way95thQ: 0.0 xxxxx xxxxx xxxxx xxxxx xxxxx 1.6 0.2 xxxxx  
Control Del: 8.3 xxxxx xxxxx xxxxx xxxxx xxxxx 53.3 48.6 xxxxx  
LOS by Move: A \* \* \* \* \* F E \*  
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Shared Cap.: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
SharedQueue: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
Shrd ConDel: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
Shared LOS: \* \* \* \* \* \* \* \* \* \*  
ApproachDel: xxxxxx xxxxxx 52.8 F  
ApproachLOS: \* \* \* \* \*  
Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

Level of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1230 Sunset / Lake Merced  
\*\*\*\*\*  
Average Delay (sec/veh): 3.7 Worst Case Level of Service: F[425.0]  
\*\*\*\*\*  
Street Name: Sunset Lake Merced  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign  
Rights: Ignore Ignore Ignore Ignore  
Lanes: 1 0 2 0 0 0 0 2 0 1 1 0 0 0 1 0 0 1 0 0  
Volume Module:  
Base Vol: 87 1279 0 0 1822 29 28 0 146 0 0 0  
Growth Adj: 1.01 1.00 1.02 1.07 1.09 1.06 1.02 1.06 1.07 1.06 1.04 1.01  
Initial Bse: 88 1279 0 0 1981 31 29 0 157 0 0 0  
Added Vol: 0 468 0 0 247 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 88 1747 0 0 2228 31 29 0 157 0 0 0  
User Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 0.00  
PHF Adj: 0.98 0.98 0.00 0.98 0.98 0.00 0.98 0.98 0.00 0.98 0.98 0.00  
PHF Volume: 90 1783 0 0 2273 0 29 0 0 0 0 0  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
FinalVolume: 90 1783 0 0 2273 0 29 0 0 0 0 0  
Critical Gap Module:  
Critical Gap: 4.1 xxxxx xxxxx xxxxx xxxxx 4.8 xxxxx 6.9 7.5 2.5 6.9  
FollowUpTim: 2.2 xxxxx xxxxx xxxxx xxxxx 3.5 xxxxx 3.3 3.5 4.0 3.3  
Capacity Module:  
Conflict Vol: 2273 xxxxx xxxxx xxxxx xxxxx 3344 xxxxx 1137 3099 4235 891  
Potent Cap.: 221 xxxxx xxxxx xxxxx xxxxx 39 xxxxx 196 5 215 285  
Move Cap.: 221 xxxxx xxxxx xxxxx xxxxx 26 xxxxx 196 3 128 285  
Volume/Cap: 0.41 xxxxx xxxxx xxxxx xxxxx 1.10 xxxxx 0.00 0.00 0.00 0.00  
Level of Service Module:  
2Way95thQ: 1.8 xxxxx xxxxx xxxxx xxxxx 3.5 xxxxx xxxxx xxxxx xxxxx  
Control Del: 32.0 xxxxx xxxxx xxxxx xxxxx 425.0 xxxxx xxxxx xxxxx xxxxx  
LOS by Move: D \* \* \* \* \* F \* \* \* \* \*  
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Shared Cap.: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
SharedQueue: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
Shrd ConDel: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
Shared LOS: \* \* \* \* \* \* \* \* \* \*  
ApproachDel: xxxxxx xxxxxx 425.0 F  
ApproachLOS: \* \* \* \* \*  
Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

19th Ave CS

Tier 4a

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1240 Lake Merced / Winston  
Cycle (sec): 90 Critical Vol./Cap.(X): 0.805  
Loss Time (sec): 9 Average Delay (sec/veh): 96.8  
Optimal Cycle: 89 Level Of Service: F

Street Name: Lake Merced Winston  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Protected Split Phase Split Phase  
Rights: WideBypass Include Include  
Min. Green: 34 34 17 55 55 0 0 0 25 25 25  
Y+R: 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0  
Lanes: 0 0 2 1 0 2 0 2 0 0 0 0 2 0 0 1

Volume Module:  
Base Vol: 0 1384 215 218 1789 0 0 0 196 0 181  
Growth Adj: 1.00 1.14 1.18 1.16 1.09 1.00 1.18 1.22 1.16 1.00 1.00  
Initial Bse: 0 1573 254 252 1954 0 0 0 196 0 181  
Added Vol: 0 393 266 116 131 0 0 0 139 0 74  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 1966 520 368 2085 0 0 0 335 0 255  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2006 530 376 2127 0 0 0 342 0 260  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2006 530 376 2127 0 0 0 342 0 260  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2006 530 376 2127 0 0 0 342 0 260

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.86 0.86 0.90 0.93 1.00 1.00 1.00 1.00 0.83  
Lanes: 0.00 2.37 0.63 2.00 2.00 0.00 0.00 0.00 0.00 2.00 0.00 1.00  
Final Sat.: 0 3896 1030 3432 3538 0 0 0 3432 0 1583

Capacity Analysis Module:  
Vol/Sat: 0.00 0.51 0.51 0.11 0.60 0.00 0.00 0.00 0.10 0.00 0.16  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.38 0.38 0.38 0.19 0.62 0.62 0.00 0.00 0.28 0.28  
Volume/Cap: 0.00 1.34 1.34 0.56 0.97 0.00 0.00 0.00 0.36 0.00 0.59  
Delay/Veh: 0.0 184 183.5 36.2 23.0 0.0 0.0 0.0 27.1 0.0 33.8  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 184 183.5 36.2 23.0 0.0 0.0 0.0 27.1 0.0 33.8  
LOS by Move: A F F D C A A A A C A C  
HCM2kAVGQ: 0 56 56 5 32 0 0 0 0 4 0 7

Note: Queue reported is the number of cars per lane.

19th Ave CS

Tier 4a

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1250 Lake Merced / Font  
Cycle (sec): 90 Critical Vol./Cap.(X): 1.400  
Loss Time (sec): 7 Average Delay (sec/veh): 160.6  
Optimal Cycle: 180 Level Of Service: F

Street Name: Lake Merced Font  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Protected Split Phase Split Phase  
Rights: Ignore Include Include  
Min. Green: 43 43 43 15 61 61 0 0 0 22 0 22  
Y+R: 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0  
Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 1 0 0 1

Volume Module:  
Base Vol: 0 1746 48 147 1549 0 0 0 43 0 304  
Growth Adj: 1.09 1.14 1.07 1.05 1.09 1.07 1.07 1.01 1.05 1.07 1.04  
Initial Bse: 0 1985 51 154 1692 0 0 0 46 0 331  
Added Vol: 0 414 -9 124 178 0 0 0 -8 0 350  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2399 42 278 1870 0 0 0 38 0 681  
User Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.00 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2447 0 284 1908 0 0 0 39 0 695  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2447 0 284 1908 0 0 0 39 0 695  
PCE Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2447 0 284 1908 0 0 0 39 0 695

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 1.00 0.93 0.93 1.00 1.00 1.00 1.00 0.93 1.00 0.83  
Lanes: 0.00 2.00 1.00 1.00 2.00 0.00 0.00 0.00 0.00 1.00 0.00 1.00  
Final Sat.: 0 3538 1900 1769 3538 0 0 0 1769 0 1583

Capacity Analysis Module:  
Vol/Sat: 0.00 0.69 0.00 0.16 0.54 0.00 0.00 0.00 0.00 0.02 0.00 0.44  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.48 0.48 0.48 0.17 0.68 0.68 0.00 0.00 0.00 0.24 0.24  
Volume/Cap: 0.00 1.45 0.00 0.96 0.80 0.00 0.00 0.00 0.00 0.09 0.00 1.80  
Delay/Veh: 0.0 224 0.0 81.0 6.3 0.0 0.0 0.0 0.0 26.7 0.0 402.2  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 224 0.0 81.0 6.3 0.0 0.0 0.0 0.0 26.7 0.0 402.2  
LOS by Move: A F A A A A A A A C A F  
HCM2kAVGQ: 0 82 0 12 12 0 0 0 0 1 0 58

Note: Queue reported is the number of cars per lane.



19th Ave CS  
Tier 4aLevel of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1261 Lake Merced / Vidal

Cycle (sec): 100 Critical Vol./Cap.(X): 0.925  
Loss Time (sec): 12 Average Delay (sec/veh): 45.2  
Optimal Cycle: 122 Level Of Service: DStreet Name: Lake Merced  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Protected Split Phase Split Phase  
Rights: Include Include Include Include  
Min. Green: 41 41 41 11 59 59 0 0 0 20 20 20  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 1 0 0 0 1Volume Module:  
Base Vol: 0 1899 29 19 1592 0 0 0 0 7 0 11  
Growth Adj: 1.00 1.14 1.11 1.09 1.09 1.00 1.00 1.00 1.00 1.10 1.00 1.12  
Initial Bse: 0 2165 32 21 1735 0 0 0 0 8 0 12  
Added Vol: 0 342 43 65 104 0 0 0 0 64 0 63  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2507 75 86 1839 0 0 0 0 72 0 75  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2358 77 87 1877 0 0 0 0 73 0 77  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2558 77 87 1877 0 0 0 0 73 0 77Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.83 0.93 0.93 1.00 1.00 0.93 1.00 0.83  
Lanes: 0.00 2.00 1.00 1.00 2.00 0.00 0.00 0.00 1.00 0.00 1.00  
Final Sat: 0 3538 1593 1769 3538 0 0 0 1769 0 1593Capacity Analysis Module:  
Vol/Sat: 0.00 0.72 0.05 0.05 0.53 0.00 0.00 0.00 0.04 0.00 0.05  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.65 0.65 0.10 0.79 0.79 0.00 0.00 0.00 0.13 0.13 0.13  
Volume/Cap: 0.00 1.11 0.07 0.49 0.67 0.00 0.00 0.00 0.32 0.00 0.37  
Delay/Veh: 0.0 74.9 6.6 52.2 6.0 0.0 0.0 0.0 43.1 0.0 44.9  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 74.9 6.6 52.2 6.0 0.0 0.0 0.0 43.1 0.0 44.9  
LOS by Move: A E A D A A A A D A D  
HCM2kAvgQ: 0 56 1 2 14 0 0 0 2 0 3

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4aLevel of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1262 Lake Merced / Acevedo

Cycle (sec): 100 Critical Vol./Cap.(X): 0.962  
Loss Time (sec): 12 Average Delay (sec/veh): 43.3  
Optimal Cycle: 149 Level Of Service: DStreet Name: Lake Merced  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Protected Split Phase Split Phase  
Rights: Include Include Include Include  
Min. Green: 41 41 41 11 59 59 0 0 0 20 20 20  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 0 0 1 0 0Volume Module:  
Base Vol: 0 1913 17 10 1588 0 0 0 0 7 0 15  
Growth Adj: 1.12 1.14 1.11 1.09 1.09 1.10 1.11 1.08 1.09 1.10 1.12 1.00  
Initial Bse: 0 2181 19 11 1731 0 0 0 0 8 0 15  
Added Vol: 0 299 25 35 133 0 0 0 0 63 0 87  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2480 44 46 1864 0 0 0 0 71 0 102  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2530 45 47 1902 0 0 0 0 72 0 104  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2530 45 47 1902 0 0 0 0 72 0 104Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.83 0.93 0.93 1.00 1.00 1.00 0.88 1.00 0.88  
Lanes: 0.00 2.00 1.00 1.00 2.00 0.00 0.00 0.00 0.41 0.00 0.59  
Final Sat: 0 3538 1593 1769 3538 0 0 0 687 0 992Capacity Analysis Module:  
Vol/Sat: 0.00 0.72 0.03 0.03 0.54 0.00 0.00 0.00 0.10 0.00 0.10  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.65 0.65 0.10 0.79 0.79 0.00 0.00 0.00 0.13 0.13 0.13  
Volume/Cap: 0.00 1.10 0.04 0.26 0.68 0.00 0.00 0.00 0.81 0.00 0.81  
Delay/Veh: 0.0 70.1 6.4 45.2 6.1 0.0 0.0 0.0 68.8 0.0 68.8  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 70.1 6.4 45.2 6.1 0.0 0.0 0.0 68.8 0.0 68.8  
LOS by Move: A E A D A A A A E A E  
HCM2kAvgQ: 0 55 0 1 15 0 0 0 8 0 8

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4a

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1263 Lake Merced / Higuera  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.994  
Loss Time (sec): 12 Average Delay (sec/veh): 37.9  
Optimal Cycle: 180 Level Of Service: D  
\*\*\*\*\*

Street Name: Lake Merced Higuera  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Protected Split Phase Split Phase  
Rights: Include Include Include Include  
Min. Green: 41 41 11 59 59 0 0 0 20 20 20  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 0 1 0 0

Volume Module:  
Base Vol: 0 1690 1 5 1590 0 0 0 0 25 0 24  
Growth Adj: 1.12 1.14 1.11 1.09 1.09 1.10 1.11 1.08 1.09 1.10 1.10 1.12  
Initial Bse: 0 1921 1 5 1736 0 0 0 0 27 0 27  
Added Vol: 0 184 2 17 179 0 0 0 0 233 0 140  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2105 3 22 1915 0 0 0 0 260 0 167  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2148 3 23 1954 0 0 0 0 266 0 170  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2148 3 23 1954 0 0 0 0 266 0 170  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2148 3 23 1954 0 0 0 0 266 0 170

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.83 0.93 0.93 1.00 1.00 1.00 1.00 0.90 0.90  
Lanes: 0.00 2.00 1.00 1.00 2.00 0.00 0.00 0.00 0.00 0.61 0.39  
Final Sat.: 0 3538 1583 1769 3538 0 0 0 0 1042 0 668

Capacity Analysis Module:  
Vol/Sat: 0.00 0.61 0.00 0.01 0.55 0.00 0.00 0.00 0.00 0.25 0.00 0.25  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.63 0.63 0.10 0.75 0.75 0.00 0.00 0.00 0.17 0.17 0.17  
Volume/Cap: 0.00 0.96 0.00 0.13 0.74 0.00 0.00 0.00 0.00 1.50 0.00 1.50  
Delay/Veh: 0.0 20.9 3.4 42.5 1.9 0.0 0.0 0.0 0.0 283.4 0.0 283.4  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 20.9 3.4 42.5 1.9 0.0 0.0 0.0 0.0 283.4 0.0 283.4  
LOS by Move: A C A D A A A A A F A F  
HCM2kAvgQ: 0 29 0 0 1 3 0 0 0 0 33 0 33  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4a

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1264 Lake Merced / Gonzalez  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 1.036  
Loss Time (sec): 12 Average Delay (sec/veh): 47.1  
Optimal Cycle: 180 Level Of Service: D  
\*\*\*\*\*

Street Name: Lake Merced Gonzalez  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Protected Protected Split Phase Split Phase  
Rights: Include Include Include Include  
Min. Green: 41 41 11 59 59 0 0 0 20 20 20  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 0 1 0 0 1

Volume Module:  
Base Vol: 0 1899 97 6 1609 0 0 0 0 39 0 9  
Growth Adj: 1.12 1.14 1.11 1.09 1.09 1.10 1.11 1.08 1.09 1.10 1.10 1.12  
Initial Bse: 0 2165 108 7 1754 0 0 0 0 43 0 10  
Added Vol: 0 136 145 21 391 0 0 0 0 360 0 51  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2301 253 28 2145 0 0 0 0 403 0 61  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2348 258 28 2189 0 0 0 0 411 0 62  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2348 258 28 2189 0 0 0 0 411 0 62  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2348 258 28 2189 0 0 0 0 411 0 62

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.83 0.93 0.93 1.00 1.00 1.00 1.00 0.93 0.83  
Lanes: 0.00 2.00 1.00 1.00 2.00 0.00 0.00 0.00 0.00 1.00 0.00  
Final Sat.: 0 3538 1583 1769 3538 0 0 0 0 1769 0 1583

Capacity Analysis Module:  
Vol/Sat: 0.00 0.66 0.16 0.02 0.62 0.00 0.00 0.00 0.00 0.23 0.00 0.04  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.63 0.63 0.63 0.10 0.75 0.75 0.00 0.00 0.00 0.17 0.17  
Volume/Cap: 0.00 1.05 0.26 0.16 0.82 0.00 0.00 0.00 0.00 1.37 0.00 0.23  
Delay/Veh: 0.0 53.5 8.8 43.1 11.3 0.0 0.0 0.0 0.0 226.6 0.0 37.9  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 53.5 8.8 43.1 11.3 0.0 0.0 0.0 0.0 226.6 0.0 37.9  
LOS by Move: A D A D B A A A A F A D  
HCM2kAvgQ: 0 44 3 1 25 0 0 0 0 28 0 2  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

Tier 4b AM

Thu Feb 4, 2010 15:03:59

Page 35-1

19th Ave CS

Tier 4a

Level of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1270 Lake Merced / Brotherhood

Cycle (sec): 110

Critical Vol./Cap.(X): 1.784

Loss Time (sec): 15

Average Delay (sec/veh): 122.0

Optimal Cycle: 180

Level Of Service: F

Street Name: Lake Merced

Approach: North Bound

South Bound

East Bound

West Bound

Movement: L - T - R

L - T - R

L - T - R

L - T - R

Control: Permitted

Protected

Protected

Protected

Rights: Ovl

Include

Ovl

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0

Lanes: 0 0 2 0 1 2 0 1 0 0 0 0 0 0 0 2

Volume Module:

Base Vol: 0 416 209 1478 225 0 0 0 0 0 0 0 139 0 1483

Growth Adj: 1.13 1.14 1.29 1.26 1.09 1.11 1.29 1.44 1.26 1.11 1.12 1.13

Initial Bse: 0 473 269 1868 246 0 0 0 0 0 0 154 0 1674

Added Vol: 0 117 -18 477 274 0 0 0 0 0 0 -16 0 164

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 590 251 2345 520 0 0 0 0 0 0 138 0 1838

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 602 256 2393 0 0 0 0 0 0 0 141 0 1875

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 602 256 2393 0 0 0 0 0 0 0 141 0 1875

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 0 602 256 2393 0 0 0 0 0 0 0 141 0 1875

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 1.00 0.93 0.83 0.90 1.00 1.00 1.00 1.00 1.00 0.93 1.00 0.73

Lanes: 0.00 2.00 1.00 2.00 1.00 0.00 0.00 0.00 0.00 1.00 0.00 2.00

Final Sat.: 0 3538 1583 3432 1900 0 0 0 0 0 1769 0 2786

Capacity Analysis Module:

Vol/Sat: 0.00 0.17 0.16 0.70 0.00 0.00 0.00 0.00 0.00 0.08 0.00 0.67

Crit Moves: \*\*\*\*

Green/Cycle: 0.16 0.16 0.43 0.48 0.69 0.69 0.00 0.00 0.00 0.22 0.22 0.75

Volume/Cap: 0.00 1.04 0.38 1.45 0.00 0.00 0.00 0.00 0.00 0.36 0.00 0.90

Delay/Veh: 0.0 94.2 18.9 227.4 0.0 0.0 0.0 0.0 0.0 37.1 0.0 16.9

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 94.2 18.9 227.4 0.0 0.0 0.0 0.0 0.0 37.1 0.0 16.9

LOS by Move: A F B F A A A A A D A B

HCM2kAvgQ: 0 17 5 86 0 0 0 0 0 4 0 32

Note: Queue reported is the number of cars per lane.

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES



Tier 4B Conditions  
Weekday PM Peak Hour

Scenario Report

Scenario: Tier 4b PM  
Command: Default Command  
Volume: Tier 4b PM  
Geometry: Tier 4b PM  
Impact Fee: Default Impact Fee  
Trip Generation: Projects PM  
Trip Distribution: PM  
Paths: Tier 4a/b  
Routes: Tier 4  
Configuration: Tier 4

Impact Analysis Report  
Level Of Service

Intersection	Base		Future		Change
	Del/	V/	Del/	V/	in
	LOS	Veh	LOS	Veh	
	A	C	A	C	
#1010 Claremont / Taraval / Dewey /	7.1	0.653	7.4	0.672	+ 0.020 V/C
#1020 Santa Clara / Portola / Vicent	30.7	0.841	40.5	0.936	+ 9.801 D/V
#1030 Junipero Serra / Sloat / West	101.4	1.113	117.2	1.170	+15.817 D/V
#1040 Junipero Serra / Ocean / Euca1	39.7	0.820	70.2	1.063	+30.533 D/V
#1050 Junipero Serra / Winston / Mer	30.4	0.678	49.3	1.062	+18.865 D/V
#1060 Junipero Serra / Holloway	30.4	0.692	37.4	0.724	+ 7.049 D/V
#1070 Junipero Serra / 19th	80.5	1.026	102.0	1.081	+21.551 D/V
#1075 Junipero Serra / Chumasero	8.6	0.914	27.4	1.051	+18.850 D/V
#1080 Junipero Serra / I-280 NB On-R	129.3	1.294	151.8	1.400	+22.595 D/V
#1090 Junipero Serra / I-280 SB On-R	49.9	1.054	89.9	1.172	+40.016 D/V
#1100 19th / Taraval	18.4	0.822	21.6	0.865	+ 3.186 D/V
#1110 19th / Sloat	127.7	1.550	154.7	1.630	+26.999 D/V
#1120 19th / Ocean	146.9	1.568	180.5	1.633	+33.636 D/V
#1130 19th / Euca1yptus	69.7	1.079	86.4	1.180	+16.707 D/V
#1140 19th / Winston	97.7	1.325	207.7	1.699	+109.967 D/
#1150 19th / Buckingham	408.9	1.759	604.0	2.196	+195.131 D/
#1160 19th / Holloway	8.1	0.801	90.8	0.929	+82.773 D/V
#1170 19th / Crespi	52.6	0.814	74.7	0.807	+22.076 D/V
#1181 Chumasero / Brotherhood	15.8	0.720	85.3	0.934	+69.466 D/V
#1182 Thomas More / brotherhood	13.7	0.462	21.9	0.572	+ 8.181 D/V
#1190 Sunset / Taraval	49.8	0.843	125.6	0.960	+75.784 D/V
#1200 Sunset / Ocean	13.3	0.687	30.5	0.827	+17.163 D/V
#1210 Skyline / Sloat / 39th	27.0	0.908	29.4	0.925	+ 0.017 V/C
#1221 Skyline / Lake Merced (WBR)	17.4	0.416	17.5	0.417	+ 0.048 D/V

Intersection	Base		Future		Change in
	Del/ LOS Veh	V/ C	Del/ LOS Veh	V/ C	
#1222 Skyline / Lake Merced (WBLT)	F 116.8	0.894	F 118.6	0.900	+ 1.760 D/V
#1230 Sunset / Lake Merced	F OVREFL 1.328		F OVREFL 2.491		Nan D/V
#1240 Lake Merced / Winston	E 66.6	0.971	F 188.9	1.372	+122.395 D/
#1250 Lake Merced / Font	D 46.9	0.783	F 179.5	1.546	+132.611 D/
#1261 Lake Merced / Vidal	C 32.9	0.687	D 36.0	0.887	+ 3.143 D/V
#1262 Lake Merced / Acevedo	C 32.4	0.705	C 34.6	0.959	+ 2.213 D/V
#1263 Lake Merced / Higuera	E 77.3	0.741	D 45.4	1.135	-31.909 D/
#1264 Lake Merced / Gonzalez	C 33.9	0.715	D 52.4	1.032	+18.414 D/V
#1270 Lake Merced / Brotherhood	E 68.7	1.689	F 186.0	2.199	+117.295 D/

Level of Service Computation Report											
FHWA Roundabout Method (Future Volume Alternative)											
Intersection #1010 Claremont / Taraval / Dewey / Kensington											
Average Delay (sec/veh): 7.4 Level Of Service: A											
Street Name: Claremont Taraval / Dewey											
Approach: North Bound South Bound East Bound West Bound											
Movement: L - T - R L - T - R L - T - R L - T - R											
Control: Yield Sign Yield Sign Yield Sign Yield Sign											
Lanes: 1 1 1 1											
Volume Module:											
Base Vol:	17	24	239	50	63	5	10	259	55	324	338
Growth Adj:	1.09	1.10	1.07	1.06	1.09	1.08	1.07	1.04	1.06	1.08	1.08
Initial Bse:	18	26	255	53	69	5	11	269	59	351	364
Added Vol:	1	0	16	0	0	0	0	0	0	22	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	19	26	271	53	69	5	11	269	59	373	364
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	20	27	277	54	70	6	11	275	60	381	371
Reduc Vol:	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	20	27	277	54	70	6	11	275	60	381	371
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	20	27	277	54	70	6	11	275	60	381	371
PCE Module:											
AutoPCE:	20	27	277	54	70	6	11	275	60	381	371
TruckPCE:	0	0	0	0	0	0	0	0	0	0	0
ComboPCE:	0	0	0	0	0	0	0	0	0	0	0
BicyclerPCE:	0	0	0	0	0	0	0	0	0	0	0
AdjVolume:	20	27	277	54	70	6	11	275	60	381	371
Delay Module: >> Time Period: 0.25 hours <<											
CircVolume:	340			771				505		58	
MaxVolume:	1016			783				927		1169	
PedVolume:	0			0				0		0	
AdjMaxVol:	1016			783				927		1169	
ApproachVol:	324			130				345		786	
ApproachV/C:	0.32			0.17				0.37		0.67	
ApproachDel:	5.2			5.5				6.2		9.2	
ApproachLOS:	A			A				A		A	
Queue:	1.4			0.6				1.7		5.5	



Tier 4b PM	Tue Jan 5, 2010 09:59:26	19th Ave CS	Tier 4b	Page 4-1
Level of Service Computation Report				
2000 HCM Operations Method (Future Volume Alternative)				
Intersection #1020 Santa Clara / Portola / Vicente				
Cycle (sec):	80	Critical Vol./Cap.(X):	0.936	
Loss Time (sec):	11	Average Delay (sec/veh):	40.5	
Optimal Cycle:	111	Level Of Service:	D	
Street Name:	Santa Clara / Vicente	Portola		
Approach:	North Bound	South Bound	West Bound	
Movement:	L - T - R	L - T - R	L - T - R	
Control:	Permitted	Permitted	Protected	
Rights:	Include	Include	Include	
Min. Green:	23 23 23	23 23 23	9 36 36	36
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0
Lanes:	0 0 1 0 0	0 0 1 0 0	1 0 1 0 1	0
Volume Module:				
Base Vol:	22 273 85	86 191 48	48 1051 33	147 987 108
Growth Adj:	1.03 1.00 1.03	1.07 1.03 1.07	1.03 1.10 1.07	1.07 1.10 1.03
Initial Bse:	23 273 88	92 198 51	50 1155 35	157 1087 112
Added Vol:	0 0 0	0 15 0	0 147 0	0 246 0
PasserByVol:	0 0 0	0 0 0	0 0 0	0 0 0
Initial Fut:	23 273 88	107 198 55	50 1302 35	157 1333 112
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.95 0.98
PHF Volume:	23 279 90	109 202 56	51 1329 36	160 1403 114
Reduc Vol:	0 0 0	0 0 0	0 0 0	0 0 0
Reduced Vol:	23 279 90	109 202 56	51 1329 36	160 1403 114
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
FinalVolume:	23 279 90	109 202 56	51 1329 36	160 1403 114
Saturation Flow Module:				
Sat/Lane:	1900 1900	1900 1900	1900 1900	1900 1900
Adjustment:	0.92 0.92 0.92	0.59 0.59 0.59	0.93 0.93 0.93	0.93 0.92 0.92
Lanes:	0.06 0.71 0.23	0.30 0.55 0.15	1.00 1.95 0.05	1.00 1.85 0.15
Final Sat:	104 1246 401	331 612 171	1769 3431 93	1769 3236 263
Capacity Analysis Module:				
Vol/Sat:	0.22 0.22 0.22	0.33 0.33 0.33	0.03 0.39 0.39	0.09 0.43 0.43
Crit Moves:	****	****	****	****
Green/Cycle:	0.30 0.30 0.30	0.30 0.30 0.30	0.11 0.45 0.45	0.11 0.45 0.45
Volume/Cap:	0.75 0.75 0.75	1.10 1.10 1.10	0.25 0.86 0.86	0.80 0.96 0.96
Delay/Veh:	34.5 34.5 34.5	106.1 106.1 106.1	35.5 26.1 26.1	62.9 36.9 36.9
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	34.5 34.5 34.5	106.1 106.1 106.1	35.5 26.1 26.1	62.9 36.9 36.9
LOS by Move:	C C C	C C C	F F F	D D D
HCM2kAvgQ:	10 10 10	17 17 17	1 19 19	6 25 25
Note: Queue reported is the number of cars per lane.				

Tier 4b PM	Tue Jan 5, 2010 09:59:26	19th Ave CS	Tier 4b	Page 5-1
Level of Service Computation Report				
2000 HCM Operations Method (Future Volume Alternative)				
Intersection #1030 Junipero Serra / Sloat / West Portal / St. Francis				
Cycle (sec):	105	Critical Vol./Cap.(X):	1.170	
Loss Time (sec):	16	Average Delay (sec/veh):	117.2	
Optimal Cycle:	180	Level Of Service:	F	
Street Name:	Junipero Serra / West Portal	Sloat / St. Francis		
Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Protected	Permitted	Split Phase	Split Phase
Rights:	Include	Include	Ignore	Include
Min. Green:	16 53 53	32 32 32	15 15 15	20 20 20
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	3 0 1 1 0	0 0 2 1 0	3 0 1 0 1	0 1 0 1 0
Volume Module:				
Base Vol:	1027 1005 60	0 1045 261	852 420 471	20 405 10
Growth Adj:	1.13 1.12 1.10	1.13 1.18 1.16	1.10 1.08 1.13	1.16 1.15 1.13
Initial Bse:	1162 1121 66	0 1232 303	937 455 533	23 464 11
Added Vol:	33 120 0	0 209 0	2 0 29	0 0 0
PasserByVol:	0 0 0	0 0 0	0 0 0	0 0 0
Initial Fut:	1195 1241 66	0 1441 303	939 455 562	23 464 11
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 0.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	1219 1266 67	0 1470 310	958 464 0	24 474 12
Reduc Vol:	0 0 0	0 0 0	0 0 0	0 0 0
Reduced Vol:	1219 1266 67	0 1470 310	958 464 0	24 474 12
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 0.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 0.00	1.00 1.00 1.00
FinalVolume:	1219 1266 67	0 1470 310	958 464 0	24 474 12
Saturation Flow Module:				
Sat/Lane:	1900 1900	1900 1900	1900 1900	1900 1900
Adjustment:	0.89 0.92 0.92	1.00 0.88 0.88	0.89 0.97 1.00	0.93 0.93 0.93
Lanes:	3.00 1.90 0.10	0.00 2.48 0.52	3.00 1.00 1.00	0.09 1.86 0.05
Final Sat:	5096 3302 176	0 4130 870	5096 1843 1900	164 3276 80
Capacity Analysis Module:				
Vol/Sat:	0.24 0.38 0.38	0.00 0.36 0.36	0.19 0.25 0.00	0.14 0.14 0.14
Crit Moves:	****	****	****	****
Green/Cycle:	0.17 0.48 0.48	0.00 0.30 0.30	0.18 0.18 0.00	0.19 0.19 0.19
Volume/Cap:	1.39 0.80 0.80	0.00 1.17 1.17	1.04 1.39 0.00	0.76 0.76 0.76
Delay/Veh:	227.4 23.0 23.0	0.0 119 118.7	83.6 238 0.0	48.1 48.1 48.1
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	227.4 23.0 23.0	0.0 119 118.7	83.6 238 0.0	48.1 48.1 48.1
LOS by Move:	F C C	A F F	F A D	D D D
HCM2kAvgQ:	28 17 17	0 36 36	17 33 0	10 10 10
Note: Queue reported is the number of cars per lane.				

19th Ave CS  
Tier 4b

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1040 Junipero Serra / Ocean / Eucalyptus  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 1.063  
Loss Time (sec): 14 Average Delay (sec/veh): 70.2  
Optimal Cycle: 180 Level Of Service: E  
\*\*\*\*\*

Street Name: Junipero Serra Ocean / Eucalyptus  
Approach: North Bound South Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Permitted Permitted  
Rights: Include Include Include Ovl Ovl  
Min. Green: 11 43 43 16 48 48 27 27 27 27 27 27 27 27  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 1 0 2 1 0 2 0 2 1 0 1 0 1 0 1 0 1

Volume Module:  
Base Vol: 176 1567 35 356 1065 96 140 356 58 77 332 333  
Growth Adj: 1.13 1.12 1.10 1.13 1.18 1.16 1.10 1.08 1.13 1.16 1.15 1.13  
Initial Bse: 199 1748 38 403 1255 112 154 386 66 90 381 377  
Added Vol: 0 107 43 35 194 9 12 91 0 25 66 34  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 199 1855 81 438 1449 121 166 477 66 115 447 411  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 203 1893 83 446 1479 123 169 486 67 117 456 419  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 203 1893 83 446 1479 123 169 486 67 117 456 419

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.92 0.97 0.88 0.90 0.88 0.88 0.63 0.63 0.83 0.63 0.63 0.83  
Lanes: 1.00 2.86 0.14 2.00 2.77 0.23 0.52 1.48 1.00 0.20 0.80 1.00  
Final Sat.: 1751 5249 231 3432 4636 386 616 1770 1583 244 951 1583

Capacity Analysis Module:  
Vol/Sat: 0.12 0.36 0.36 0.13 0.32 0.32 0.27 0.27 0.04 0.48 0.48 0.26  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.11 0.43 0.43 0.16 0.48 0.48 0.27 0.27 0.38 0.27 0.27 0.43  
Volume/Cap: 1.05 0.84 0.84 0.81 0.66 0.66 1.02 1.02 0.11 1.77 1.77 0.62  
Delay/Veh: 124.5 25.6 25.6 53.0 17.3 17.3 76.5 76.5 20.4 397.3 397 26.2  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 124.5 25.6 25.6 53.0 17.3 17.3 76.5 76.5 20.4 397.3 397 26.2  
LOS by Move: F C C D B B E C F F C  
HCM2kAvgQ: 8 18 17 6 10 10 17 17 1 49 49 11

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4b

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1050 Junipero Serra / Winston / Mercedes  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 1.062  
Loss Time (sec): 14 Average Delay (sec/veh): 49.3  
Optimal Cycle: 180 Level Of Service: D  
\*\*\*\*\*

Street Name: Junipero Serra Winston / Mercedes  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 19 40 40 19 40 40 27 27 27 27 27 27 27 27  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 0 1 0 1

Volume Module:  
Base Vol: 224 1516 52 85 1130 117 169 152 81 74 103 36  
Growth Adj: 1.05 1.12 1.11 1.15 1.18 1.08 1.11 1.11 1.15 1.08 1.00 1.05  
Initial Bse: 236 1691 58 97 1332 127 188 169 93 80 103 38  
Added Vol: 73 15 2 1 62 156 135 157 48 1 133 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 309 1706 60 98 1394 283 323 326 141 81 236 38  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 315 1741 61 100 1422 289 330 333 144 83 241 39  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 315 1741 61 100 1422 289 330 333 144 83 241 39

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.93 0.89 0.89 0.93 0.87 0.87 0.44 0.98 0.83 0.30 0.98 0.83  
Lanes: 1.00 2.90 0.10 1.00 2.49 0.51 1.00 1.00 1.00 1.00 1.00 1.00  
Final Sat.: 1769 4886 172 1769 4120 836 845 1862 1583 579 1862 1583

Capacity Analysis Module:  
Vol/Sat: 0.18 0.36 0.36 0.06 0.35 0.35 0.39 0.18 0.09 0.14 0.13 0.02  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.19 0.40 0.40 0.19 0.40 0.40 0.27 0.27 0.27 0.27 0.27 0.27  
Volume/Cap: 0.94 0.89 0.89 0.30 0.86 0.86 1.45 0.66 0.34 0.53 0.48 0.09  
Delay/Veh: 75.4 31.4 31.4 37.0 29.9 29.9 259.9 39.2 31.4 43.4 33.8 27.7  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 75.4 31.4 31.4 37.0 29.9 29.9 259.9 39.2 31.4 43.4 33.8 27.7  
LOS by Move: E C C D C C F D C C C  
HCM2kAvgQ: 10 18 18 2 18 18 22 8 3 7 1

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4b

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1060 Junipero Serra / Holloway  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.724  
Loss Time (sec): 14 Average Delay (sec/veh): 37.4  
Optimal Cycle: 100 Level Of Service: D

Street Name: Junipero Serra Holloway  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Protected Protected Protected Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include Include Include Include Include  
Min. Green: 19 39 39 19 39 39 28 28 28 28 28 28  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 0 1 0 1

Volume Module:  
Base Vol: 183 1398 101 176 1001 104 117 140 23 143 96 107  
Growth Adj: 1.11 1.12 1.08 1.14 1.08 1.04 1.11 1.14 1.10 1.11  
Initial Bse: 202 1559 109 195 1180 118 126 145 25 163 105 118  
Added Vol: 151 60 1 31 39 41 7 -21 0 1 0 23  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 353 1619 110 226 1219 159 133 124 25 164 105 141  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 360 1652 112 230 1244 162 136 126 26 167 107 144  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 360 1652 112 230 1244 162 136 126 26 167 107 144  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 360 1652 112 230 1244 162 136 126 26 167 107 144

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.93 0.88 0.88 0.93 0.88 0.88 0.67 0.98 0.83 0.64 0.98 0.83  
Lanes: 1.00 2.81 0.19 1.00 2.65 0.35 1.00 1.00 1.00 1.00 1.00 1.00  
Final Sat: 1769 4718 319 1769 4419 577 1275 1862 1583 1218 1862 1583  
Capacity Analysis Module:  
Vol/Sat: 0.20 0.35 0.35 0.13 0.28 0.28 0.11 0.07 0.02 0.14 0.06 0.09  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.19 0.39 0.39 0.19 0.39 0.39 0.28 0.28 0.28 0.28 0.28 0.28  
Volume/Cap: 1.07 0.90 0.90 0.69 0.72 0.72 0.38 0.24 0.06 0.49 0.21 0.33  
Delay/Veh: 110.2 32.9 32.9 48.6 25.8 25.8 32.0 28.9 26.6 35.0 28.4 30.5  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 110.2 32.9 32.9 48.6 25.8 25.8 32.0 28.9 26.6 35.0 28.4 30.5  
LOS by Move: F C C D C C C C C C C C  
HCM2kAVGQ: 14 17 17 6 12 12 4 3 1 5 3 4

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4b

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1070 Junipero Serra / 19th  
Cycle (sec): 120 Critical Vol./Cap.(X): 1.081  
Loss Time (sec): 0 Average Delay (sec/veh): 102.0  
Optimal Cycle: 180 Level Of Service: F

Street Name: Junipero Serra 19th  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Split Phase Split Phase Permitted Permitted  
Rights: Ignore Ignore Ovl Include  
Min. Green: 54 54 54 20 20 20 9 9 9 9  
Y+R: 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0  
Lanes: 3 0 1 1 0 0 0 4 0 1 0 0 1 0 0 0 1 0

Volume Module:  
Base Vol: 2410 1660 25 0 1178 17 0 123 3060 0 47 50  
Growth Adj: 1.09 1.12 1.06 1.09 1.18 1.12 1.06 1.01 1.09 1.12 1.06 1.09  
Initial Bse: 2621 1851 27 0 1388 19 0 124 3346 0 50 54  
Added Vol: 98 186 2 0 41 0 0 37 199 0 1 26  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 2719 2037 29 0 1429 19 0 161 3545 0 51 80  
User Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.00 0.98 0.98 0.00 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 2775 2079 0 0 1458 0 0 164 3617 0 52 82  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 2775 2079 0 0 1458 0 0 164 3617 0 52 82  
PCE Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 2775 2079 0 0 1458 0 0 164 3617 0 52 82

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.90 0.93 0.95 1.00 0.89 1.00 1.00 0.98 0.73 1.00 0.90 0.90  
Lanes: 3.00 2.00 0.00 0.00 4.00 1.00 1.00 1.00 3.00 0.00 0.39 0.61  
Final Sat: 5147 3538 0 0 6778 1900 0 1862 4178 0 661 1046  
Capacity Analysis Module:  
Vol/Sat: 0.54 0.59 0.00 0.00 0.22 0.00 0.00 0.09 0.87 0.00 0.08 0.08  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.50 0.50 0.50 0.20 0.20 0.20 0.14 0.14 0.68 0.14 0.14 0.14  
Volume/Cap: 1.08 1.18 0.00 0.00 1.08 0.00 0.00 0.63 1.27 0.00 0.56 0.56  
Delay/Veh: 66.0 108 0.0 0.0 95.7 0.0 0.0 59.7 132.2 0.0 57.3 57.3  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 66.0 108 0.0 0.0 95.7 0.0 0.0 59.7 132.2 0.0 57.3 57.3  
LOS by Move: E F A A F A A E F A E E  
HCM2kAVGQ: 46 61 0 0 20 0 0 7 87 0 5 5

Note: Queue reported is the number of cars per lane.





19th Ave CS  
Tier 4b

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1090 Junipero Serra / I-280 SB On-Ramp / John Daly  
Cycle (sec): 120 Critical Vol./Cap.(X): 1.172  
Loss Time (sec): 8 Average Delay (sec/veh): 89.9  
Optimal Cycle: 180 Level Of Service: F

Street Name: Junipero Serra / I-280 SB On-Ramp John Daly  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Split Phase Split Phase Split Phase Split Phase  
Rights: Ovl Include Include Include  
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 0 0 2 0 0 0 0 0 0 2 0 2 0 0 0

Volume Module:  
Base Vol: 0 0 350 0 0 0 972 427 722 1966 0  
Growth Adj: 1.05 1.00 1.04 1.32 1.55 1.33 1.04 1.09 1.32 1.33 1.10 1.05  
Initial Bse: 0 0 365 0 0 0 1058 563 958 2172 0  
Added Vol: 0 0 34 0 0 0 171 36 0 283 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 0 399 0 0 0 1229 599 958 2455 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 0 408 0 0 0 1254 611 977 2505 0  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 0 408 0 0 0 1254 611 977 2505 0

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 1.00 0.73 1.00 1.00 1.00 1.00 0.85 0.85 0.90 0.93 1.00  
Lanes: 0.00 0.00 2.00 0.00 0.00 0.00 0.00 2.02 0.98 2.00 2.00 0.00  
Final Sat.: 0 0 2786 0 0 0 3250 1584 3432 3538 0

Capacity Analysis Module:  
Vol/Sat: 0.00 0.00 0.15 0.00 0.00 0.00 0.00 0.39 0.39 0.28 0.71 0.00  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.00 0.60 0.00 0.00 0.00 0.00 0.33 0.33 0.60 0.60 0.00  
Volume/Cap: 0.00 0.00 0.24 0.00 0.00 0.00 0.00 1.17 1.17 0.47 1.17 0.00  
Delay/Veh: 0.0 0.0 11.1 0.0 0.0 0.0 0.0 125 124.8 13.3 107 0.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 0.0 11.1 0.0 0.0 0.0 0.0 125 124.8 13.3 107 0.0  
LOS by Move: A B A A A A F F A  
HCM2kAvgQ: 0 0 4 0 0 0 0 40 40 9 69

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4b

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1100 19th / Taraval  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.865  
Loss Time (sec): 10 Average Delay (sec/veh): 21.6  
Optimal Cycle: 99 Level Of Service: C

Street Name: 19th Taraval  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 66 66 66 66 66 66 23 23 23 23 23 23  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 0 2 1 0 0 1 0 1 0 1 0

Volume Module:  
Base Vol: 0 2131 104 0 2591 31 3 331 84 22 336 51  
Growth Adj: 1.06 1.12 1.06 1.09 1.18 1.09 1.06 1.00 1.09 1.09 1.00 1.06  
Initial Bse: 0 2377 110 0 3053 34 3 331 91 24 336 54  
Added Vol: 0 201 2 0 202 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2578 112 0 3255 34 3 331 91 24 336 54  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2630 114 0 3322 34 3 338 93 24 343 55  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2630 114 0 3322 34 3 338 93 24 343 55

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.91 0.89 1.00 0.91 0.89 0.86 0.86 0.86 0.83 0.83 0.83  
Lanes: 0.00 2.87 0.13 0.00 2.97 0.03 0.01 1.56 0.43 0.12 1.62 0.26  
Final Sat.: 0 4958 215 0 5150 53 24 2538 701 182 2562 411

Capacity Analysis Module:  
Vol/Sat: 0.00 0.53 0.53 0.00 0.64 0.64 0.13 0.13 0.13 0.13 0.13 0.13  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.67 0.67 0.00 0.67 0.67 0.23 0.23 0.23 0.23 0.23 0.23  
Volume/Cap: 0.00 0.79 0.79 0.00 0.96 0.96 0.58 0.58 0.58 0.58 0.58 0.58  
Delay/Veh: 0.0 13.5 13.5 0.0 24.1 24.1 37.4 37.4 37.4 37.6 37.6 37.6  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 13.5 13.5 0.0 24.1 24.1 37.4 37.4 37.4 37.6 37.6 37.6  
LOS by Move: A B B A C C D D D D D D  
HCM2kAvgQ: 0 23 23 0 42 41 7 7 7 7 7 7

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4bLevel of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #110 19th / Sloat

\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 1.630  
Loss Time (sec): 9 Average Delay (sec/veh): 154.7  
Optimal Cycle: 180 Level of Service: F  
\*\*\*\*\*Street Name: 19th Sloat  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Protected Permitted+Prot Permitted  
Rights: Include Include Include Include  
Min. Green: 0 43 43 11 58 58 4 33 33 24 24 24  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 1 0 2 1 0 1 1 1 0 0 0 3 0 1Volume Module:  
Base Vol: 0 2446 66 235 2609 321 185 1440 74 0 870 497  
Growth Adj: 1.13 1.12 1.10 1.13 1.18 1.16 1.10 1.08 1.13 1.16 1.15 1.13  
Initial Bse: 0 2728 73 266 3075 373 203 1560 84 0 998 562  
Added Vol: 0 164 2 16 170 18 22 13 0 0 13 47  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2892 75 282 3245 391 225 1573 84 0 1011 609  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2951 76 287 3311 399 230 1605 85 0 1031 622  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2951 76 287 3311 399 230 1605 85 0 1031 622  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2951 76 287 3311 399 230 1605 85 0 1031 622Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 0.93 0.88 0.88 0.41 0.88 0.88 1.00 0.89 0.83  
Lanes: 0.00 2.92 0.08 1.00 2.68 0.32 1.00 2.85 0.15 0.00 3.00 1.00  
Final Sat.: 0 4936 127 1769 4464 538 782 4764 253 0 5083 1583Capacity Analysis Module:  
Vol/Sat: 0.00 0.60 0.60 0.16 0.74 0.74 0.29 0.34 0.34 0.00 0.20 0.39  
Crit Moves: \*\*\*\*\*  
Green/Cycle: 0.00 0.43 0.43 0.11 0.54 0.54 0.37 0.37 0.37 0.00 0.27 0.27  
Volume/Cap: 0.00 1.39 1.39 1.44 1.37 1.37 0.79 0.92 0.92 0.00 0.75 1.44  
Delay/Veh: 0.0 203 203.1 269.9 183 183.5 42.5 38.0 38.0 0.0 36.9 248.7  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 203 203.1 269.9 183 183.5 42.5 38.0 38.0 0.0 36.9 248.7  
LOS by Move: A F F F F D D A D F  
HCM2kAvgQ: 0 70 70 22 87 87 9 22 22 0 12 44  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4bLevel of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1120 19th / Ocean

\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 1.633  
Loss Time (sec): 9 Average Delay (sec/veh): 180.5  
Optimal Cycle: 180 Level of Service: F  
\*\*\*\*\*Street Name: 19th Ocean  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 64 64 64 64 64 64 26 26 26 26 26 26  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 0 2 1 0 1 0 1 0 0 1 0 0Volume Module:  
Base Vol: 0 2340 47 0 2579 164 64 293 25 25 271 127  
Growth Adj: 1.13 1.12 1.10 1.13 1.18 1.16 1.10 1.08 1.13 1.16 1.15 1.13  
Initial Bse: 0 2610 52 0 3039 191 70 317 28 29 311 144  
Added Vol: 0 166 0 0 170 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2776 52 0 3209 191 70 317 28 29 311 144  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2832 53 0 3275 195 72 324 29 30 317 147  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2832 53 0 3275 195 72 324 29 30 317 147  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2832 53 0 3275 195 72 324 29 30 317 147Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.44 0.89 1.00 0.88 0.88 0.89 0.97 0.97 0.73 0.73 0.73  
Lanes: 0.00 2.97 0.03 0.00 2.83 0.17 1.00 0.92 0.08 0.06 0.64 0.30  
Final Sat.: 0 2511 47 0 4760 283 1687 1689 150 83 886 409Capacity Analysis Module:  
Vol/Sat: 0.00 1.13 1.13 0.00 0.69 0.69 0.04 0.19 0.19 0.36 0.36 0.36  
Crit Moves: \*\*\*\*\*  
Green/Cycle: 0.64 0.64 0.64 0.64 0.64 0.64 0.27 0.27 0.27 0.27 0.27 0.27  
Volume/Cap: 0.00 1.76 1.76 0.00 1.08 1.08 0.16 0.72 0.72 1.35 1.35 1.35  
Delay/Veh: 0.0 354 354.2 0.0 48.9 48.9 29.0 42.4 42.4 211.8 212 211.8  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 354 354.2 0.0 48.9 48.9 29.0 42.4 42.4 211.8 212 211.8  
LOS by Move: A F F A D C D D F F F  
HCM2kAvgQ: 0 86 172 0 48 48 2 11 11 33 33 33  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.



19th Ave CS  
Tier 4bLevel Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1130 19th / EucalyptusCycle (sec): 100 Critical Vol./Cap.(X): 1.180  
Loss Time (sec): 9 Average Delay (sec/veh): 86.4  
Optimal Cycle: 180 Level Of Service: FStreet Name: 19th Eucalyptus  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 66 66 66 66 25 25 25 25  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 0 2 1 0 1 1 0 0 0 0 1 0 0Volume Module:  
Base Vol: 0 2277 26 0 2555 114 170 169 54 9 167 17  
Growth Adj: 1.13 1.12 1.10 1.13 1.18 1.16 1.10 1.08 1.13 1.16 1.15 1.13  
Initial Bse: 0 2540 29 0 3011 133 187 183 61 10 192 19  
Added Vol: 0 121 18 0 137 33 45 84 0 13 62 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2661 47 0 3148 166 232 267 61 23 254 19  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2715 48 0 3212 169 237 273 62 24 259 20  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2715 48 0 3212 169 237 273 62 24 259 20  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2715 48 0 3212 169 237 273 62 24 259 20Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.53 0.89 1.00 0.89 0.89 0.64 0.64 0.64 0.93 0.93 0.93  
Lanes: 0.00 2.97 0.03 0.00 2.85 0.15 1.24 1.43 0.33 0.08 0.86 0.06  
Final Sat.: 0 3009 53 0 4795 252 1511 1741 398 139 1505 114Capacity Analysis Module:  
Vol/Sat: 0.00 0.90 0.90 0.00 0.67 0.67 0.16 0.16 0.16 0.17 0.17 0.17  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.66 0.66 0.66 0.66 0.66 0.66 0.26 0.26 0.26 0.26 0.26  
Volume/Cap: 0.00 1.37 1.37 0.00 1.01 1.01 0.61 0.61 0.61 0.67 0.67  
Delay/Veh: 0.0 175 175.3 0.0 26.3 26.3 35.9 35.9 35.9 41.4 41.4  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 175 175.3 0.0 26.3 26.3 35.9 35.9 35.9 41.4 41.4  
LOS by Move: A F F A C C D D D D D  
HCM2kAVGQ: 0 65 106 0 40 40 6 6 6 9 9 9

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4bLevel Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1140 19th / WinstonCycle (sec): 100 Critical Vol./Cap.(X): 1.699  
Loss Time (sec): 13 Average Delay (sec/veh): 207.7  
Optimal Cycle: 180 Level Of Service: FStreet Name: 19th Winston  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Protected Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 16 44 44 44 44 44 26 26 26 26 26 26  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 2 0 2 1 0 0 0 3 0 1 1 1 0 1 0 1 0 1 0Volume Module:  
Base Vol: 524 2162 50 0 2624 168 245 364 347 95 351 45  
Growth Adj: 1.03 1.12 1.05 1.09 1.18 1.06 1.05 1.00 1.09 1.06 1.00 1.03  
Initial Bse: 539 2411 53 0 3092 178 258 364 377 101 351 46  
Added Vol: 120 22 -34 0 81 102 116 374 133 36 325 1  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 659 2433 19 0 3173 280 374 738 510 137 676 47  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 672 2483 19 0 3238 286 382 753 520 139 690 48  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 672 2483 19 0 3238 286 382 753 520 139 690 48  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 672 2483 19 0 3238 286 382 753 520 139 690 48Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.90 0.89 0.89 1.00 1.34 0.83 0.31 0.23 0.83 0.49 0.49 0.49  
Lanes: 2.00 2.98 0.02 0.00 3.00 1.00 1.00 2.00 1.00 0.32 1.57 0.11  
Final Sat.: 3432 5039 39 0 7625 1583 586 878 1583 236 1465 102Capacity Analysis Module:  
Vol/Sat: 0.20 0.49 0.49 0.00 0.42 0.18 0.65 0.86 0.33 0.47 0.47 0.47  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.16 0.44 0.44 0.44 0.44 0.44 0.27 0.27 0.27 0.27 0.27  
Volume/Cap: 1.22 1.12 1.12 0.00 0.97 0.41 2.46 3.24 1.24 1.78 1.78 1.78  
Delay/Veh: 158.3 84.4 84.4 0.0 32.5 18.0 700.6 1050 163.6 394.4 394.4  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 158.3 84.4 84.4 0.0 32.5 18.0 700.6 1050 163.6 394.4 394.4  
LOS by Move: F F F A C B F F F F F  
HCM2kAVGQ: 18 39 39 0 41 5 43 47 31 39 39 39

Note: Queue reported is the number of cars per lane.



19th Ave CS  
Tier 4b

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1170 19th / Crespi  
\*\*\*\*\*  
Cycle (sec): 120 Critical Vol./Cap.(X): 0.807  
Loss Time (sec): 0 Average Delay (sec/veh): 74.7  
Optimal Cycle: 96 Level Of Service: E  
\*\*\*\*\*

Street Name: 19th Crespi  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Split Phase Split Phase  
Rights: Include Ignore Include  
Min. Green: 59 59 0 64 64 21 0 21 0 0 0  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 3 0 0 0 0 3 0 1 0 0 0 0 0 0

Volume Module:  
Base Vol: 0 2485 0 0 3081 99 147 0 97 0 0 0  
Growth Adj: 1.15 1.12 1.00 1.00 1.00 1.00 1.00 1.00 1.18 1.19 1.15  
Initial Bse: 0 2772 0 0 3631 117 147 0 97 0 0 0  
Added Vol: 0 99 0 0 219 74 -88 0 17 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2871 0 0 3850 191 59 0 114 0 0 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2929 0 0 3929 0 60 0 0 0 0 0  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2929 0 0 3929 0 60 0 0 0 0 0

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 1.00 1.00 0.89 1.00 0.93 1.00 1.00 1.00 1.00  
Lanes: 0.00 3.00 0.00 0.00 3.00 1.00 1.00 0.00 1.00 0.00 0.00  
Final Sat.: 0 5083 0 0 5083 1900 1769 0 1900 0 0 0

Capacity Analysis Module:  
Vol/Sat: 0.00 0.58 0.00 0.00 0.77 0.00 0.03 0.00 0.00 0.00 0.00  
Crit Moves: \*\*\*\*\*  
Green/Cycle: 0.51 0.51 0.51 0.69 0.69 0.28 0.28 0.00 0.00 0.00 0.00  
Volume/Cap: 0.00 1.13 0.00 0.00 1.13 0.00 0.12 0.00 0.00 0.00 0.00  
Delay/Veh: 0.0 85.1 0.0 0.0 67.5 0.0 33.1 0.0 0.0 0.0 0.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 85.1 0.0 0.0 67.5 0.0 33.1 0.0 0.0 0.0 0.0  
LOS by Move: A F A A E A C A A A A  
HCM2kAvgQ: 0 57 0 0 70 0 2 0 0 0 0 0  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4b

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1181 Chumaseo / Brotherhood  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.934  
Loss Time (sec): 8 Average Delay (sec/veh): 85.3  
Optimal Cycle: 123 Level Of Service: F  
\*\*\*\*\*

Street Name: Chumaseo Brotherhood  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Split Phase Split Phase Split Phase Split Phase  
Rights: Include Include Include Include  
Min. Green: 20 20 20 15 15 20 48 48  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 1 0 0 0 0 1 0 0 1 0 2 1 0

Volume Module:  
Base Vol: 0 0 0 79 0 12 39 1471 0 0 1625 121  
Growth Adj: 1.28 1.00 1.08 1.27 1.38 1.47 1.08 1.16 1.27 1.47 1.57 1.28  
Initial Bse: 0 0 0 100 0 18 42 1710 0 0 2550 155  
Added Vol: 0 0 0 62 0 -11 -23 442 0 0 657 180  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 0 0 162 0 7 19 2152 0 0 3207 335  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 0 0 166 0 7 19 2196 0 0 3273 342  
Reduced Vol: 0 0 0 166 0 7 19 2196 0 0 3273 342  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 0 0 166 0 7 19 2196 0 0 3273 342

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.80 0.80 1.00 0.71 0.75 0.71 0.93 0.93 1.00 1.00 0.88 0.88  
Lanes: 0.00 1.00 0.00 0.96 0.00 0.04 1.00 2.00 0.00 1.00 2.72 0.28  
Final Sat.: 0 1520 0 1299 0 54 1769 3538 0 1900 4538 474

Capacity Analysis Module:  
Vol/Sat: 0.00 0.00 0.00 0.13 0.00 0.13 0.01 0.62 0.00 0.00 0.72 0.72  
Crit Moves: \*\*\*\*\*  
Green/Cycle: 0.00 0.00 0.00 0.15 0.00 0.15 0.20 0.77 0.00 0.00 0.57 0.57  
Volume/Cap: 0.00 0.00 0.00 0.85 0.00 0.85 0.05 0.81 0.00 0.00 1.27 1.27  
Delay/Veh: 0.0 0.0 0.0 80.0 0.0 80.0 32.6 2.7 0.0 0.0 136 136.1  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 0.0 0.0 80.0 0.0 80.0 32.6 2.7 0.0 0.0 136 136.1  
LOS by Move: A A A F A C A A A A F F  
HCM2kAvgQ: 0 0 0 8 0 8 0 4 0 0 73 73  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.



19th Ave CS  
Tier 4b

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1182 Thomas More / Brotherhood  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.572  
Loss Time (sec): 8 Average Delay (sec/veh): 21.9  
Optimal Cycle: 97 Level Of Service: C  
\*\*\*\*\*

Street Name: Thomas More Brotherhood  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Split Phase Split Phase Protected Protected  
Rights: Include Include Include Include  
Min. Green: 20 0 20 0 0 0 21 48 48 21 48 48  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 1 0 0 0 0 0 0 0 0 1 0 3 0 0

Volume Module:  
Base Vol: 17 0 32 0 0 0 0 1535 15 33 1609 0  
Growth Adj: 1.28 1.00 1.08 1.27 1.38 1.47 1.08 1.16 1.27 1.47 1.57 1.28  
Initial Bse: 22 0 34 0 0 0 0 1785 19 49 2525 0  
Added Vol: 0 0 0 0 0 0 0 504 0 0 837 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 22 0 34 0 0 0 0 2289 19 49 3362 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 22 0 35 0 0 0 0 2335 19 50 3431 0  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 22 0 35 0 0 0 0 2335 19 50 3431 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 22 0 35 0 0 0 0 2335 19 50 3431 0

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.88 1.00 0.88 1.00 1.00 1.00 0.89 0.89 0.93 0.89 1.00  
Lanes: 0.39 0.00 0.61 0.00 0.00 0.00 0.00 2.98 0.02 1.00 3.00 0.00  
Final Sat.: 648 0 1027 0 0 0 0 5036 42 1769 5083 0

Capacity Analysis Module:  
Vol/Sat: 0.03 0.00 0.03 0.00 0.00 0.00 0.00 0.46 0.46 0.03 0.67 0.00  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.20 0.00 0.20 0.00 0.00 0.00 0.00 0.51 0.51 0.21 0.72 0.00  
Volume/Cap: 0.17 0.00 0.17 0.00 0.00 0.00 0.00 0.91 0.91 0.13 0.94 0.00  
Delay/Veh: 33.4 0.0 33.4 0.0 0.0 0.0 0.0 27.7 27.7 32.3 17.6 0.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 33.4 0.0 33.4 0.0 0.0 0.0 0.0 27.7 27.7 32.3 17.6 0.0  
LOS by Move: C A C A A A A C C C C B A  
HCM2kAVGQ: 2 0 2 0 0 0 0 25 25 1 38 0  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4b

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1190 Sunset / Taraval  
\*\*\*\*\*  
Cycle (sec): 60 Critical Vol./Cap.(X): 0.960  
Loss Time (sec): 10 Average Delay (sec/veh): 125.6  
Optimal Cycle: 100 Level Of Service: F  
\*\*\*\*\*

Street Name: Sunset Taraval  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 29 29 29 29 29 29 21 21 21 21 21 21  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 0 2 1 0 1 0 1 0 1 0

Volume Module:  
Base Vol: 0 2129 96 0 1790 117 70 238 37 76 243 30  
Growth Adj: 1.14 1.20 1.12 1.15 1.26 1.17 1.12 1.04 1.15 1.17 1.08 1.14  
Initial Bse: 0 2553 108 0 2261 137 79 249 43 89 263 34  
Added Vol: 0 483 0 0 513 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 3036 108 0 2774 137 79 249 43 89 263 34  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 3098 110 0 2831 140 80 254 44 91 268 35  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 3098 110 0 2831 140 80 254 44 91 268 35  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 3098 110 0 2831 140 80 254 44 91 268 35

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 1.00 0.89 0.89 0.48 0.96 0.96 0.49 0.96 0.96  
Lanes: 0.00 2.90 0.10 0.00 2.86 0.14 1.00 0.85 0.15 1.00 0.88 0.12  
Final Sat.: 0 4885 173 0 4810 238 916 1554 267 929 1619 211

Capacity Analysis Module:  
Vol/Sat: 0.00 0.63 0.63 0.00 0.59 0.59 0.09 0.16 0.16 0.10 0.17 0.17  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.48 0.48 0.00 0.48 0.48 0.35 0.35 0.35 0.35 0.35 0.35  
Volume/Cap: 0.00 1.31 1.31 0.00 1.22 1.22 0.25 0.47 0.47 0.28 0.47 0.47  
Delay/Veh: 0.0 159 159.1 0.0 117 117.5 15.7 17.6 17.6 16.2 17.7 17.7  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 159 159.1 0.0 117 117.5 15.7 17.6 17.6 16.2 17.7 17.7  
LOS by Move: A F F A F B B B B B B B  
HCM2kAVGQ: 0 58 58 0 47 47 1 5 1 5 1 5  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1200 Sunset / Ocean  
Cycle (sec): 60 Critical Vol./Cap.(X): 0.827  
Loss Time (sec): 9 Average Delay (sec/veh): 30.5  
Optimal Cycle: 63 Level Of Service: C

Street Name: Sunset Ocean  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 31 31 31 31 19 19 19 19  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 1 1 0 0 1 0 0 1 0 1

Volume Module:  
Base Vol: 0 1682 14 1 1588 60 30 61 18 37 47 226  
Growth Adj: 1.11 1.24 1.10 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.11  
Initial Bse: 0 2085 15 1 1589 60 33 61 18 37 47 252  
Added Vol: 0 590 0 0 670 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2675 15 1 2259 60 33 61 18 37 47 252  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2729 16 1 2305 61 34 62 18 38 48 257  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2729 16 1 2305 61 34 62 18 38 48 257  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2729 16 1 2305 61 34 62 18 38 48 257

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 0.79 0.79 0.88 0.88 0.88  
Lanes: 0.00 2.98 0.02 0.01 2.92 0.07 0.30 0.54 0.16 1.00 1.00 1.00  
Final Sat.: 0 5049 29 2 4407 117 493 909 268 1450 1862 1583

Capacity Analysis Module:  
Vol/Sat: 0.00 0.54 0.54 0.52 0.52 0.07 0.07 0.07 0.07 0.03 0.03 0.16  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.53 0.53 0.53 0.32 0.32 0.32 0.32 0.32 0.32 0.32 0.32  
Volume/Cap: 0.00 1.01 1.01 0.98 0.98 0.22 0.22 0.22 0.22 0.08 0.08 0.51  
Delay/Veh: 0.0 34.7 34.7 28.0 28.0 16.0 16.0 16.0 14.7 14.6 20.4  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 34.7 34.7 28.0 28.0 16.0 16.0 16.0 14.7 14.6 20.4  
LOS by Move: A C C C C B B B B B C  
HCM2kAvg: 0 21 21 24 24 2 2 2 2 0 0 1 4  
Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM 4-Way Stop Method (Future Volume Alternative)  
Intersection #1210 Skyline / Sloat / 39th  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.925  
Loss Time (sec): 0 Average Delay (sec/veh): 29.4  
Optimal Cycle: 0 Level Of Service: D

Street Name: Skyline / 39th Sloat  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Stop Sign Stop Sign Stop Sign Stop Sign  
Rights: Ignore Include Ignore Include  
Min. Green: 0 0 0 0 0 0 0 0  
Lanes: 0 1 0 0 2 0 0 0 1 0 0 1 0 1 2 0 1 0

Volume Module:  
Base Vol: 327 0 565 0 21 7 2 350 163 450 435 64  
Growth Adj: 1.13 1.23 1.24 1.16 1.08 1.05 1.24 1.25 1.16 1.05 1.03 1.13  
Initial Bse: 371 0 701 0 23 7 2 437 189 475 450 73  
Added Vol: 0 0 3 0 0 0 0 0 43 0 2 35 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 371 0 704 0 23 7 2 480 189 477 485 73  
User Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.00 0.98 0.98 0.98 0.98 0.98 0.00 0.98 0.98 0.98  
PHF Volume: 378 0 0 0 23 8 3 489 0 486 495 74  
Reduced Vol: 378 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 378 0 0 0 23 8 3 489 0 486 495 74  
PCE Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00  
FinalVolume: 378 0 0 0 23 8 3 489 0 486 495 74

Saturation Flow Module:  
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Lanes: 1.00 0.00 2.00 0.00 0.75 0.25 0.01 1.99 1.00 2.00 1.74 0.26  
Final Sat.: 409 0 912 0 286 93 4 771 406 839 785 119  
Capacity Analysis Module:  
Vol/Sat: 0.92 xxxx 0.00 xxxx 0.08 0.63 0.63 0.00 0.58 0.63 0.62  
Crit Moves: \*\*\*\*  
Delay/Veh: 56.1 0.0 0.0 0.0 12.8 12.8 25.4 25.3 0.0 21.7 22.6 21.9  
Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 56.1 0.0 0.0 0.0 12.8 12.8 25.4 25.3 0.0 21.7 22.6 21.9  
LOS by Move: F \* \* B B D D \* C C C  
ApproachDel: 56.1 12.8 25.3  
Delay Adj: 1.00 1.00 1.00  
AdjDel/Veh: 56.1 12.8 25.3  
LOS by Appr: F B D  
AllWayAvg: 5.1 5.1 0.0 0.1 0.1 0.1 1.5 1.5 0.0 1.2 1.5 1.5  
Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4b

Level Of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1221 Skyline / Lake Merced (WBR)  
\*\*\*\*\*  
Average Delay (sec/veh): 2.5 Worst Case Level Of Service: C [17.5]  
\*\*\*\*\*  
Street Name: Skyline Lake Merced (WBR)  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign  
Rights: Include Include Include Include  
Lanes: 0 0 2 0 0 1 0 2 0 0 0 0 0 0 0 0 1  
\*\*\*\*\*  
Volume Module:  
Base Vol: 0 853 0 100 489 0 0 0 0 0 0 0 133  
Growth Adj: 1.51 1.22 1.12 1.07 1.12 1.46 1.12 1.02 1.07 1.46 1.81 1.51  
Initial Bse: 0 1041 0 107 548 0 0 0 0 0 0 0 201  
Added Vol: 0 3 0 0 2 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 1044 0 107 550 0 0 0 0 0 0 0 201  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 1065 0 109 561 0 0 0 0 0 0 0 205  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
FinalVolume: 0 1065 0 109 561 0 0 0 0 0 0 0 205  
\*\*\*\*\*  
Critical Gap Module:  
Critical Gp:xxxx xxxxxxxx 4.1 xxxxxxxx xxxxxxxx xxxxxxxx 6.9  
FollowUpTim:xxxx xxxxxxxx 2.2 xxxxxxxx xxxxxxxx xxxxxxxx 3.3  
\*\*\*\*\*  
Capacity Module:  
Conflict Vol: xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx 532  
Potent Cap.: xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx 492  
Move Cap.: xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx 492  
Volume/Cap: xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx 0.42  
\*\*\*\*\*  
Level Of Service Module:  
2Way95thQ: xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx 2.0  
Control Del:xxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx 17.5  
LOS by Move: B \* \* \* \* \* C  
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Shared Cap.: xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx  
SharedQueue:xxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx  
Shrd ConDel:xxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx  
Shared LOS: \* \* \* \* \* \* \* \* \* \* \*  
ApproachDel: xxxxxxxx xxxxxxxx 17.5  
ApproachLOS: \* \* \* \* \* C  
\*\*\*\*\*  
Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

19th Ave CS  
Tier 4b

Level Of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1222 Skyline / Lake Merced (WBLT)  
\*\*\*\*\*  
Average Delay (sec/veh): 7.4 Worst Case Level Of Service: F[118.6]  
\*\*\*\*\*  
Street Name: Skyline Lake Merced (WBLT)  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign  
Rights: Include Include Include Include  
Lanes: 1 0 1 1 0 0 0 2 0 1 0 0 0 0 1 0 1 0 0  
\*\*\*\*\*  
Volume Module:  
Base Vol: 8 853 118 0 468 21 0 0 0 75 3 0  
Growth Adj: 1.51 1.22 1.12 1.07 1.12 1.46 1.12 1.02 1.07 1.46 1.81 1.51  
Initial Bse: 12 1044 133 0 524 31 0 0 0 110 5 0  
Added Vol: 0 3 0 0 2 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 12 1047 133 0 526 31 0 0 0 110 5 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 12 1069 135 0 537 31 0 0 0 112 6 0  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
FinalVolume: 12 1069 135 0 537 31 0 0 0 112 6 0  
\*\*\*\*\*  
Critical Gap Module:  
Critical Gp: 4.1 xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx 6.8 6.5 xxxxxxx  
FollowUpTim: 2.2 xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx 3.5 4.0 xxxxxxx  
\*\*\*\*\*  
Capacity Module:  
Conflict Vol: 568 xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx 1429 1729 xxxxxxx  
Potent Cap.: 1000 xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx 126 87 xxxxxxx  
Move Cap.: 1000 xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx 124 86 xxxxxxx  
Volume/Cap: 0.01 xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx 0.90 0.06 xxxxxxx  
\*\*\*\*\*  
Level Of Service Module:  
2Way95thQ: 0.0 xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx 5.7 0.2 xxxxxxx  
Control Del: 8.6 xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx 122.0 49.5 xxxxxxx  
LOS by Move: A \* \* \* \* \* F E \*  
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Shared Cap.: xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx  
SharedQueue:xxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx  
Shrd ConDel:xxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx  
Shared LOS: \* \* \* \* \* \* \* \* \* \* \*  
ApproachDel: xxxxxxxx xxxxxxxx 118.6  
ApproachLOS: \* \* \* \* \* F  
\*\*\*\*\*  
Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*



Level of Service Computation Report													
2000 HCM Unsignalized Method (Future Volume Alternative)													
Intersection #1230 Sunset / Lake Merced													
Average Delay (sec/veh): OVERFLOW Worst Case Level of Service: F[xxxxx]													
Street Name: Sunset Lake Merced													
Approach: North Bound South Bound East Bound West Bound													
Movement: L - T - R L - T - R L - T - R L - T - R													
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign													
Rights: Ignore Ignore Ignore Ignore													
Lanes: 1 0 2 0 0 0 2 0 1 1 0 0 0 1 0 0 1 0 0													
Volume Module:													
Base Vol:	197	1777	0	0	1550	52	19	0	195	0	0	0	0
Growth Adj:	1.48	1.29	1.19	1.26	1.43	1.55	1.19	1.09	1.26	1.55	1.68	1.48	
Initial Bse:	292	2284	0	0	2209	81	23	0	245	0	0	0	
Added Vol:	0	590	0	0	670	0	0	0	0	0	0	0	
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0	
Initial Fut:	292	2874	0	0	2879	81	23	0	245	0	0	0	
User Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	
PHF Adj:	0.98	0.98	0.00	0.98	0.98	0.00	0.98	0.98	0.00	0.98	0.98	0.00	
PHF Volume:	298	2932	0	0	2938	0	23	0	0	0	0	0	
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0	
FinalVolume:	298	2932	0	0	2938	0	23	0	0	0	0	0	
Critical Gap Module:													
Critical Gap:	4.1	xxxx	xxxx	xxxx	xxxx	xxxx	2.8	xxxx	6.9	7.5	2.5	6.9	
FollowUpTim:	2.2	xxxx	xxxx	xxxx	xxxx	xxxx	3.5	xxxx	3.3	3.5	4.0	3.3	
Capacity Module:													
Conflict Vol:	2938	xxxx	xxxx	xxxx	xxxx	xxxx	5001	xxxx	1469	4998	6467	1466	
Potent Cap:	120	xxxx	xxxx	xxxx	xxxx	xxxx	98	xxxx	117	0	68	117	
Move Cap:	120	xxxx	xxxx	xxxx	xxxx	xxxx	0	xxxx	117	0	0	117	
Volume/Cap:	2.49	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.00	xxxx	xxxx	0.00	
Level of Service Module:													
2Way95thQ:	26.5	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	
Control Del:	753.0	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	
LOS by Move:	F	*	*	*	*	*	*	*	*	*	*	*	
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT													
Shared Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0	xxxx	
SharedQueue:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	
Shrd ConDel:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*	
ApproachDel:	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	
ApproachLOS:	*	*	*	*	*	*	*	*	*	*	*	*	
Note: Queue reported is the number of cars per lane.													

Level of Service Computation Report													
2000 HCM Operations Method (Future Volume Alternative)													
Intersection #1240 Lake Merced / Winston													
Cycle (sec): 90 Critical Vol./Cap.(X): 1.372													
Loss Time (sec): 9 Average Delay (sec/veh): 188.9													
Optimal Cycle: 180 Level Of Service: F													
Street Name: North Bound Lake Merced South Bound East Bound West Bound													
Movement: L - T - R L - T - R L - T - R L - T - R													
Control: Permitted Protected Split Phase Split Phase													
Rights: WideBypass Include Include Include													
Min. Green:	34	34	34	17	55	55	0	0	0	25	25	25	
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lanes:	0	0	2	1	0	2	0	2	0	0	0	0	
Volume Module:													
Base Vol:	0	1747	404	204	1229	0	0	0	0	180	0	284	
Growth Adj:	1.55	1.12	1.27	1.30	1.18	1.59	1.27	1.43	1.30	1.59	1.99	1.55	
Initial Bse:	0	1948	514	266	1448	0	0	0	0	285	0	441	
Added Vol:	0	315	251	210	460	0	0	0	0	352	0	275	
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0	
Initial Fut:	0	2263	765	476	1908	0	0	0	0	637	0	716	
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
PHF Volume:	0	2310	780	485	1947	0	0	0	0	650	0	731	
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0	
Reduced Vol:	0	2310	780	485	1947	0	0	0	0	650	0	731	
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
FinalVolume:	0	2310	780	485	1947	0	0	0	0	650	0	731	
Saturation Flow Module:													
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Adjustment:	1.00	0.86	0.86	0.90	0.93	1.00	1.00	1.00	1.00	0.90	1.00	0.83	
Lanes:	0.00	2.24	0.76	2.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	1.00	
Final Sat:	0	3655	1235	3432	3538	0	0	0	0	3432	0	1593	
Capacity Analysis Module:													
Vol/Sat:	0.00	0.63	0.63	0.14	0.55	0.00	0.00	0.00	0.00	0.19	0.00	0.46	
Crit Moves:	0.38	0.38	0.38	0.19	0.62	0.62	0.00	0.00	0.00	0.28	0.28	0.28	
Green/Cycle:	0.00	1.65	1.65	0.73	0.89	0.00	0.00	0.00	0.00	0.68	0.00	1.66	
Volume/Cap:	0.0	320	319.5	40.8	13.9	0.0	0.0	0.0	0.0	32.9	0.0	340.5	
Delay/Veh:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
User DelAdj:	0.0	320	319.5	40.8	13.9	0.0	0.0	0.0	0.0	32.9	0.0	340.5	
AdjDel/Veh:	A	F	F	D	B	A	A	A	A	C	A	F	
LOS by Move:	0	86	86	6	18	0	0	0	0	9	0	57	
HCM2KAVGQ:	A	F	F	D	B	A	A	A	A	C	A	F	
Note: Queue reported is the number of cars per lane.													

19th Ave CS  
Tier 4bLevel Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\* Intersection #1250 Lake Merced / Font \*\*\*\*\*

Cycle (sec): 90 Critical Vol./Cap. (X): 1.546  
Loss Time (sec): 7 Average Delay (sec/veh): 179.5  
Optimal Cycle: 180 Level Of Service: F

\*\*\*\*\* Street Name: Lake Merced Font \*\*\*\*\*

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control:	Permitted	Protected	Split Phase	Split Phase
Rights:	Include	Include	Include	Include
Min. Green:	43 43 43	15 61 61	0 0 0	22 0 22
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 2 0 1	1 0 2 0 0	0 0 0 0 0	1 0 0 0 1

\*\*\*\*\* Volume Module: \*\*\*\*\*

Base Vol:	0 1683 17 176 1644	0 0 0	0 104 0 331
Growth Adj:	1.08 1.12 1.10	1.13 1.18 1.11	1.10 1.08 1.13 1.11 1.04 1.08
Initial Bse:	0 1877 19 198 1937	0 0 0	0 115 0 357
Added Vol:	0 359 -10 417 527	0 0 0	-9 0 304
PasserByVol:	0 0 0	0 0 0	0 0 0
Initial Fut:	0 2236 9 615 2464	0 0 0	0 106 0 661
User Adj:	1.00 1.00 0.00	1.00 1.00 1.00	1.00 1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.00	0.98 0.98 0.98	0.98 0.98 0.98 0.98
PHF Volume:	0 2282 0 628 2515	0 0 0	0 109 0 674
Reduced Vol:	0 0 0	0 0 0	0 0 0
Reduced Vol:	0 2282 0 628 2515	0 0 0	0 109 0 674
PCE Adj:	1.00 1.00 0.00	1.00 1.00 1.00	1.00 1.00 1.00 1.00
MLF Adj:	1.00 1.00 0.00	1.00 1.00 1.00	1.00 1.00 1.00 1.00
FinalVolume:	0 2282 0 628 2515	0 0 0	0 109 0 674

\*\*\*\*\* Saturation Flow Module: \*\*\*\*\*

Sat/Lane:	1900 1900 1900 1900 1900 1900
Adjustment:	1.00 0.93 1.00 0.93 0.93 1.00
Lanes:	0.00 2.00 1.00 1.00 2.00 0.00
Final Sat.:	0 3538 1900 1769 3538 0

\*\*\*\*\* Capacity Analysis Module: \*\*\*\*\*

Vol/Sat:	0.00 0.64 0.00	0.35 0.71 0.00	0.00 0.00 0.00	0.06 0.00 0.43
Crit Moves:	0.48 0.48 0.48	0.17 0.68 0.68	0.00 0.00 0.00	0.24 0.24 0.24
Green/Cycle:	0.00 1.35 0.00	2.13 1.05 0.00	0.00 0.00 0.00	0.25 0.00 1.74
Volume/Cap:	0.00 180 0.00	556.9 37.7 0.0	0.0 0.0 0.0	28.8 0.0 379.0
Delay/Veh:	0.0 180 0.0	556.9 37.7 0.0	0.0 0.0 0.0	28.8 0.0 379.0
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	0.0 180 0.0	556.9 37.7 0.0	0.0 0.0 0.0	28.8 0.0 379.0
LOS by Move:	A F A F A F	A D A A A A	A A A C A F	A A A C A F
HCMA2kAvgQ:	0 69 0	59 50 0	0 0 0	3 0 55

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4bLevel Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\* Intersection #1261 Lake Merced / Vidal \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap. (X): 0.887  
Loss Time (sec): 12 Average Delay (sec/veh): 36.0  
Optimal Cycle: 104 Level Of Service: D

\*\*\*\*\* Street Name: Lake Merced Vidal \*\*\*\*\*

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control:	Permitted	Protected	Split Phase	Split Phase
Rights:	Include	Include	Include	Include
Min. Green:	41 41 41	11 59 59	0 0 0	20 20 20
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 2 0 1	1 0 2 0 0	0 0 0 0 0	1 0 0 0 1

\*\*\*\*\* Volume Module: \*\*\*\*\*

Base Vol:	0 1811 9 13 1748	0 0 0	0 10 0 11
Growth Adj:	1.00 1.12 1.16	1.19 1.18 1.00	1.00 1.00 1.00 1.91 1.00 1.88
Initial Bse:	0 2028 10 15 2063	0 0 0	0 19 0 21
Added Vol:	0 290 65 102 415	0 0 0	0 58 0 59
PasserByVol:	0 0 0	0 0 0	0 0 0
Initial Fut:	0 2318 75 117 2478	0 0 0	0 77 0 80
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98 0.98
PHF Volume:	0 2366 77 120 2528	0 0 0	0 79 0 81
Reduced Vol:	0 0 0	0 0 0	0 0 0
Reduced Vol:	0 2366 77 120 2528	0 0 0	0 79 0 81
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00 1.00
FinalVolume:	0 2366 77 120 2528	0 0 0	0 79 0 81

\*\*\*\*\* Saturation Flow Module: \*\*\*\*\*

Sat/Lane:	1900 1900 1900 1900 1900 1900		
Adjustment:	1.00 0.93 0.83	0.93 0.93 1.00	1.00 1.00 1.00 0.93 1.00 0.83
Lanes:	0.00 2.00 1.00	1.00 2.00 0.00	0.00 0.00 0.00 0.00 1.00 0.00
Final Sat.:	0 3538 1583 1769 3538 0	0 0 0	0 1769 0 1583

\*\*\*\*\* Capacity Analysis Module: \*\*\*\*\*

Vol/Sat:	0.00 0.67 0.05	0.07 0.71 0.00	0.00 0.00 0.00	0.04 0.00 0.05
Crit Moves:	0.63 0.63 0.63	0.10 0.77 0.77	0.00 0.00 0.00	0.15 0.15 0.15
Green/Cycle:	0.00 1.06 0.08	0.68 0.93 0.00	0.00 0.00 0.00	0.30 0.00 0.34
Volume/Cap:	0.00 56.3 7.3	62.4 16.3 0.0	0.0 0.0 0.0	40.6 0.0 42.0
Delay/Veh:	0.0 56.3 7.3	62.4 16.3 0.0	0.0 0.0 0.0	40.6 0.0 42.0
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	0.0 56.3 7.3	62.4 16.3 0.0	0.0 0.0 0.0	40.6 0.0 42.0
LOS by Move:	A E A A E B A A A A	A A A A A A	A A A A A A	A A A A A A
HCMA2kAvgQ:	0 45 1	3 31 0	0 0 0	2 0 3

Note: Queue reported is the number of cars per lane.

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1262 Lake Merced / Acevedo  
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.959  
Loss Time (sec): 12 Average Delay (sec/veh): 34.6  
Optimal Cycle: 146 Level of Service: C  
\*\*\*\*\*

Street Name: Lake Merced Acevedo  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Split Phase Split Phase  
Rights: Include Include Include Include Include  
Min. Green: 41 41 41 11 59 59 0 0 0 20 20 20  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 1 0 0

Volume Module:  
Base Vol: 0 1806 11 14 1743 0 0 0 0 9 0 15  
Growth Adj: 1.88 1.12 1.16 1.19 1.18 1.91 1.16 1.20 1.19 1.91 2.64 1.88  
Initial Bse: 0 2023 13 17 2057 0 0 0 0 17 0 28  
Added Vol: 0 278 79 108 365 0 0 0 0 56 0 77  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2301 92 125 2422 0 0 0 0 73 0 105  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2348 94 127 2471 0 0 0 0 75 0 107  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2348 94 127 2471 0 0 0 0 75 0 107  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2348 94 127 2471 0 0 0 0 75 0 107

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.83 0.93 0.93 1.00 1.00 1.00 0.88 1.00 0.88  
Lanes: 0.00 2.00 1.00 1.00 2.00 0.00 0.00 0.00 0.41 0.00 0.59  
Final Sat.: 0 3538 1583 1769 3538 0 0 0 0 689 0 990

Capacity Analysis Module:  
Vol/Sat: 0.00 0.66 0.06 0.07 0.70 0.00 0.00 0.00 0.00 0.11 0.00 0.11  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.63 0.63 0.10 0.77 0.77 0.00 0.00 0.00 0.15 0.15 0.15  
Volume/Cap: 0.00 1.05 0.09 0.72 0.91 0.00 0.00 0.00 0.72 0.00 0.72  
Delay/Veh: 0.0 53.5 7.5 65.8 14.5 0.0 0.0 0.0 57.0 0.0 57.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 53.5 7.5 65.8 14.5 0.0 0.0 0.0 57.0 0.0 57.0  
LOS by Move: A D A B A A A A E A E  
HCM2kAvgQ: 0 44 1 4 31 0 0 0 0 7 0 7  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1263 Lake Merced / Higuera  
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 1.135  
Loss Time (sec): 12 Average Delay (sec/veh): 45.4  
Optimal Cycle: 180 Level of Service: D  
\*\*\*\*\*

Street Name: Lake Merced Higuera  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Protected Protected Split Phase Split Phase  
Rights: Include Include Include Include Include  
Min. Green: 41 41 41 11 59 59 0 0 0 20 0 20  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 1 0 0

Volume Module:  
Base Vol: 0 1795 41 23 1730 0 0 0 0 30 0 22  
Growth Adj: 1.88 1.12 1.16 1.19 1.18 1.91 1.16 1.20 1.19 1.91 2.64 1.88  
Initial Bse: 0 2002 47 27 2039 0 0 0 0 57 0 41  
Added Vol: 0 241 280 174 247 0 0 0 0 180 0 116  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2243 327 201 2286 0 0 0 0 237 0 157  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2289 334 205 2332 0 0 0 0 242 0 160  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2289 334 205 2332 0 0 0 0 242 0 160  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2289 334 205 2332 0 0 0 0 242 0 160

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.83 0.93 0.93 1.00 1.00 1.00 0.90 1.00 0.90  
Lanes: 0.00 2.00 1.00 1.00 2.00 0.00 0.00 0.00 0.60 0.00 0.40  
Final Sat.: 0 3538 1583 1769 3538 0 0 0 0 1029 0 682

Capacity Analysis Module:  
Vol/Sat: 0.00 0.65 0.21 0.12 0.66 0.00 0.00 0.00 0.24 0.00 0.24  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.63 0.63 0.63 0.10 0.77 0.77 0.00 0.00 0.15 0.15 0.15  
Volume/Cap: 0.00 1.03 0.34 1.16 0.86 0.00 0.00 0.00 1.57 0.00 1.57  
Delay/Veh: 0.0 35.5 5.2 162.9 3.7 0.0 0.0 0.0 316.7 0.0 316.7  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 35.5 5.2 162.9 3.7 0.0 0.0 0.0 316.7 0.0 316.7  
LOS by Move: A D A F A A A A F A F  
HCM2kAvgQ: 0 40 2 10 3 0 0 0 32 0 32  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.



Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1264 Lake Merced / Gonzalez

Cycle (sec): 100 Critical Vol./Cap.(X): 1.032  
Loss Time (sec): 12 Average Delay (sec/veh): 52.4  
Optimal Cycle: 180 Level Of Service: D

Street Name: Lake Merced Gonzalez  
Approach: North Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Split Phase Split Phase  
Rights: Include Include Include Include Include  
Min. Green: 41 41 11 59 59 0 0 0 20 20 20  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 1 0 1 0 0

Volume Module:  
Base Vol: 0 1827 65 8 1751 0 0 0 0 53 0 9  
Growth Adj: 1.88 1.12 1.16 1.19 1.18 1.20 1.19 1.91 2.64 1.88  
Initial Bse: 0 2046 75 10 2066 0 0 0 101 0 17  
Added Vol: 0 475 449 64 362 0 0 0 320 0 46  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2521 524 74 2428 0 0 0 421 0 63  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2573 535 75 2478 0 0 0 430 0 64  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2573 535 75 2478 0 0 0 430 0 64  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2573 535 75 2478 0 0 0 430 0 64

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.83 0.93 0.93 1.00 1.00 0.92 1.00 0.92  
Lanes: 0.00 2.00 1.00 1.00 2.00 0.00 0.00 0.00 1.77 0.00 0.23  
Final Sat.: 0 3538 1593 1769 3538 0 0 0 3097 0 403

Capacity Analysis Module:  
Vol/Sat: 0.00 0.73 0.34 0.04 0.70 0.00 0.00 0.00 0.14 0.00 0.16  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.63 0.63 0.63 0.10 0.77 0.77 0.00 0.00 0.15 0.15  
Volume/Cap: 0.00 1.15 0.54 0.42 0.91 0.00 0.00 0.00 0.93 0.00 1.06  
Delay/Veh: 0.0 93.5 12.4 49.6 14.6 0.0 0.0 0.0 66.2 0.0 102.1  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 93.5 12.4 49.6 14.6 0.0 0.0 0.0 66.2 0.0 102.1  
LOS by Move: A F B D B A A A A A F  
HCM2RAvgQ: 0 61 8 2 33 0 0 0 11 0 15

Note: Queue reported is the number of cars per lane.

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1270 Lake Merced / Brotherhood

Cycle (sec): 110 Critical Vol./Cap.(X): 2.199  
Loss Time (sec): 15 Average Delay (sec/veh): 186.0  
Optimal Cycle: 180 Level Of Service: F

Street Name: Lake Merced Brotherhood  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Protected Protected Protected Protected  
Rights: Ovl Include Include Include Include  
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
Y+R: 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0  
Lanes: 0 0 2 0 1 2 0 1 0 0 0 0 0 1 0 0 2

Volume Module:  
Base Vol: 0 504 195 1342 517 0 0 0 0 267 0 1323  
Growth Adj: 1.71 1.12 1.14 1.17 1.18 1.74 1.14 1.16 1.17 1.74 2.31 1.71  
Initial Bse: 0 562 222 1572 609 0 0 0 0 465 0 2264  
Added Vol: 0 339 -26 432 250 0 0 0 0 -13 0 585  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 901 196 2004 859 0 0 0 0 452 0 2849  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 920 200 2045 0 0 0 0 0 462 0 2907  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 920 200 2045 0 0 0 0 0 462 0 2907  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 920 200 2045 0 0 0 0 0 462 0 2907

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.83 0.90 1.00 1.00 1.00 1.00 1.00 0.93 1.00  
Lanes: 0.00 2.00 1.00 2.00 1.00 0.00 0.00 0.00 0.00 1.00 0.00  
Final Sat.: 0 3538 1583 3432 1900 0 0 0 0 1769 0 2786

Capacity Analysis Module:  
Vol/Sat: 0.00 0.26 0.13 0.60 0.00 0.00 0.00 0.00 0.26 0.00 1.04  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.16 0.16 0.43 0.48 0.69 0.69 0.00 0.00 0.22 0.22 0.75  
Volume/Cap: 0.00 1.59 0.30 1.24 0.00 0.00 0.00 0.00 1.20 0.00 1.40  
Delay/Veh: 0.0 319 18.1 134.5 0.0 0.0 0.0 0.0 153.7 0.0 196.9  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 319 18.1 134.5 0.0 0.0 0.0 0.0 153.7 0.0 196.9  
LOS by Move: A F B F A A A A A F  
HCM2RAvgQ: 0 40 4 58 0 0 0 0 28 0 113

Note: Queue reported is the number of cars per lane.

**Tier 4B Conditions**  
**Weekend Midday Peak Hour**

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1030 Junipero Serra / Sloat / West Portal / St. Francis

Cycle (sec): 105 Critical Vol./Cap.(X): 1.183  
Loss Time (sec): 16 Average Delay (sec/veh): 181.9  
Optimal Cycle: 180 Level Of Service: F

Street Name: Junipero Serra / West Portal Sloat / St. Francis

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase  
Rights: Include Include Ignore  
Min. Green: 16 53 32 32 32 15 15 20 20 20  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 3 0 1 1 0 0 0 2 1 0 3 0 1 0 1 0 1 0

## Volume Module:

Base Vol: 1575 1246 23 0 787 272 895 346 371 14 293 26  
Growth Adj: 1.13 1.12 1.10 1.18 1.16 1.10 1.08 1.13 1.16 1.15 1.13  
Initial Bse: 1781 1390 25 0 927 316 984 375 420 16 336 29  
Added Vol: 92 212 0 0 261 0 2 0 88 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 1873 1602 25 0 1188 316 986 375 508 16 336 29  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 1912 1634 26 0 1213 323 1006 382 0 17 343 30  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 1912 1634 26 0 1213 323 1006 382 0 17 343 30  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 1912 1634 26 0 1213 323 1006 382 0 17 343 30

## Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.89 0.92 0.92 0.87 0.87 0.89 0.97 1.00 0.92 0.92 0.92  
Lanes: 3.00 1.97 0.03 0.00 2.37 0.63 3.00 1.00 1.00 0.09 1.76 0.15  
Final Sat: 5096 3441 54 0 3929 1046 5096 1843 1900 149 3071 269

## Capacity Analysis Module:

Vol/Sat: 0.38 0.47 0.47 0.00 0.31 0.31 0.20 0.21 0.00 0.11 0.11 0.11  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.21 0.51 0.51 0.00 0.30 0.30 0.14 0.14 0.00 0.19 0.19 0.19  
Volume/Cap: 1.79 0.92 0.92 0.00 1.01 1.01 1.38 1.45 0.00 0.59 0.59 0.59  
Delay/Veh: 401.1 27.0 27.0 0.0 62.1 62.1 225.1 268 0.0 42.5 42.5 42.5  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 401.1 27.0 27.0 0.0 62.1 62.1 225.1 268 0.0 42.5 42.5 42.5  
LOS by Move: F C C A E E F F A D D D  
HCM2kAvgQ: 56 25 25 0 25 25 25 29 0 7 7 7

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1070 Junipero Serra / 19th

Cycle (sec): 120 Critical Vol./Cap.(X): 2.226  
Loss Time (sec): 37 Average Delay (sec/veh): 253.7  
Optimal Cycle: 180 Level Of Service: F

Street Name: Junipero Serra

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Split Phase Split Phase Split Phase  
Rights: Ignore Ignore Ovl  
Min. Green: 54 54 54 20 20 20 9 9 9 9 9 9  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 3 0 1 1 0 0 0 3 1 0 0 0 1 0 3 0 0 0 1 0

## Volume Module:

Base Vol: 2245 1828 70 0 1917 12 0 85 4216 0 76 36  
Growth Adj: 1.09 1.12 1.06 1.09 1.18 1.12 1.06 1.01 1.09 1.12 1.06 1.09  
Initial Bse: 2442 2039 74 0 2259 13 0 86 4610 0 81 39  
Added Vol: 135 137 1 0 31 0 0 41 282 0 0 30  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 2577 2176 75 0 2290 13 0 127 4892 0 81 69  
User Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.00 0.98 0.98 0.00 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 2629 2220 0 0 2337 0 0 129 4992 0 82 71  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 2629 2220 0 0 2337 0 0 129 4992 0 82 71  
PCE Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 2629 2220 0 0 2337 0 0 129 4992 0 82 71

## Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.90 0.93 0.95 1.00 0.89 0.91 1.00 0.98 0.73 1.00 0.92 0.92  
Lanes: 3.00 2.00 0.00 0.00 4.00 0.00 0.00 1.00 3.00 0.00 0.54 0.46  
Final Sat: 5147 3538 0 0 6778 0 0 1862 4178 0 940 807

## Capacity Analysis Module:

Vol/Sat: 0.51 0.63 0.00 0.00 0.34 0.00 0.00 0.07 1.19 0.00 0.09 0.09  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.52 0.52 0.52 0.18 0.18 0.18 0.09 0.09 0.68 0.09 0.09 0.09  
Volume/Cap: 0.98 1.20 0.00 0.00 1.88 0.00 0.00 0.77 1.76 0.00 0.97 0.97  
Delay/Veh: 32.9 116 0.0 0.0 449 0.0 0.0 81.8 348.5 0.0 119 119.2  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 32.9 116 0.0 0.0 449 0.0 0.0 81.8 348.5 0.0 119 119.2  
LOS by Move: C F A A F A F A F A F A F  
HCM2kAvgQ: 36 67 0 0 60 0 0 6 167 0 9 9

Note: Queue reported is the number of cars per lane.



19th Ave CS  
Tier 4bLevel Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1110 19th / Sloat

Cycle (sec): 100 Critical Vol./Cap.(X): 1.579  
Loss Time (sec): 9 Average Delay (sec/veh): 118.7  
Optimal Cycle: 180 Level Of Service: F

Street Name: 19th Sloat

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Protected Permitted+Prot Permitted  
Rights: Include Include Include Include  
Min. Green: 0 43 43 11 58 58 4 33 33 24 24 24  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 1 0 2 1 0 1 1 1 0 0 0 3 0 1

Volume Module:

Base Vol: 0 2032 83 275 2702 314 266 1157 123 0 1123 426  
Growth Adj: 1.13 1.12 1.10 1.16 1.10 1.08 1.13 1.16 1.15 1.13  
Initial Bse: 0 2266 91 311 3184 365 292 1253 139 0 1288 482  
Added Vol: 0 242 2 27 234 8 9 60 0 0 62 37  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2508 93 338 3418 373 301 1313 139 0 1350 519  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2559 95 345 3488 381 308 1340 142 0 1377 529  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2559 95 345 3488 381 308 1340 142 0 1377 529  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2559 95 345 3488 381 308 1340 142 0 1377 529

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 0.93 0.88 0.88 0.62 0.87 0.87 1.00 0.89 0.83  
Lanes: 0.00 2.89 0.11 1.00 2.70 0.30 1.00 2.71 0.29 0.00 3.00 1.00  
Final Sat.: 0 4877 181 1769 4514 493 1169 4500 477 0 5083 1583

Capacity Analysis Module:

Vol/Sat: 0.00 0.52 0.52 0.19 0.77 0.77 0.26 0.30 0.30 0.00 0.27 0.33  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.43 0.43 0.18 0.61 0.61 0.30 0.30 0.30 0.00 0.24 0.24  
Volume/Cap: 0.00 1.22 1.22 1.06 1.26 1.26 1.12 1.00 1.00 0.00 1.13 1.39  
Delay/Veh: 0.0 128 128.2 108.1 130 129.9 63.0 57.6 57.6 0.0 107 230.6  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 128 128.2 108.1 130 129.9 63.0 57.6 57.6 0.0 107 230.6  
LOS by Move: A F F F F F F F F F A F F  
HCM2kAvgQ: 0 49 49 18 80 80 19 23 23 0 26 36

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4bLevel Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1140 19th / Winston

Cycle (sec): 100 Critical Vol./Cap.(X): 1.714  
Loss Time (sec): 13 Average Delay (sec/veh): 182.6  
Optimal Cycle: 180 Level Of Service: F

Street Name: 19th Winston

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Protected Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 16 44 44 44 44 44 26 26 26 26 26 26  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 2 0 2 1 0 0 0 3 0 1 1 1 0 1 0 1 0 1 0

Volume Module:

Base Vol: 424 1667 58 0 2144 200 155 253 325 17 319 25  
Growth Adj: 1.03 1.12 1.05 1.09 1.18 1.06 1.05 1.00 1.09 1.06 1.00 1.03  
Initial Bse: 436 1859 61 0 2527 212 163 253 353 18 319 26  
Added Vol: 164 71 0 0 130 118 131 444 170 25 419 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 600 1930 61 0 2657 330 294 697 523 43 738 26  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 612 1970 62 0 2711 337 300 711 533 44 753 26  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 612 1970 62 0 2711 337 300 711 533 44 753 26  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 612 1970 62 0 2711 337 300 711 533 44 753 26

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.90 0.89 0.89 1.00 1.34 0.83 0.26 0.20 0.83 0.67 0.67 0.67  
Lanes: 2.00 2.91 0.09 0.00 3.00 1.00 1.00 2.00 1.00 0.11 1.83 0.06  
Final Sat.: 3432 4903 155 0 7625 1583 495 743 1583 136 2328 81

Capacity Analysis Module:

Vol/Sat: 0.18 0.40 0.40 0.00 0.36 0.21 0.61 0.96 0.34 0.32 0.32 0.32  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.16 0.44 0.44 0.44 0.44 0.44 0.27 0.27 0.27 0.27 0.27 0.27  
Volume/Cap: 1.11 0.91 0.91 0.00 0.81 0.48 2.29 3.61 1.27 1.22 1.22 1.22  
Delay/Veh: 115.9 29.4 29.4 0.22 9 19.3 623.6 1221 176.6 149.0 149.0 149.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 115.9 29.4 29.4 0.22 9 19.3 623.6 1221 176.6 149.0 149.0 149.0  
LOS by Move: F C C C A C B F F F F F F  
HCM2kAvgQ: 13 19 19 0 25 6 33 46 33 24 24 24

Note: Queue reported is the number of cars per lane.

Tier 4b WE Mon Jan 4, 2010 09:42:38 Page 18-1  
19th Ave CS  
Tier 4b

Level Of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)  
Intersection #1150 19th / Buckingham

Average Delay (sec/veh): 3.1 Worst Case Level Of Service: F [ 95.3 ]

Street Name: 19th Buckingham

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign

Rights: Include Include Include Include

Lanes: 0 0 3 0 0 0 0 3 0 1 0 0 0 0 1 0 0 0 0 0

Volume Module:

Base Vol: 0 2149 0 0 2446 40 0 0 154 0 0 0 0

Growth Adj: 1.04 1.12 1.07 1.10 1.18 1.07 1.07 1.02 1.10 1.07 1.00 1.04

Initial Bse: 0 2397 0 0 2883 43 0 0 169 0 0 0

Added Vol: 0 235 0 0 299 26 0 0 28 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 2632 0 0 3182 69 0 0 197 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 2685 0 0 3247 70 0 0 201 0 0 0

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

FinalVolume: 0 2685 0 0 3247 70 0 0 201 0 0 0

Critical Gap Module:

Critical Gap: 6.9 6.9 6.9 6.9 6.9 6.9 6.9 6.9 6.9 6.9 6.9

FollowUpTime: 3.3 3.3 3.3 3.3 3.3 3.3 3.3 3.3 3.3 3.3 3.3

Capacity Module:

Conflict Vol: 1082 1082 1082 1082 1082 1082 1082 1082 1082 1082 1082

Potential Cap: 213 213 213 213 213 213 213 213 213 213 213

Move Cap: 213 213 213 213 213 213 213 213 213 213 213

Volume/Cap: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95

Level Of Service Module:

2Way95thQ: 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0

Control Del: 95.3 95.3 95.3 95.3 95.3 95.3 95.3 95.3 95.3 95.3 95.3

LOS by Move: F F F F F F F F F F F

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap: 95.3 95.3 95.3 95.3 95.3 95.3 95.3 95.3 95.3 95.3 95.3

SharedQueue: 95.3 95.3 95.3 95.3 95.3 95.3 95.3 95.3 95.3 95.3 95.3

Shrd ConDel: 95.3 95.3 95.3 95.3 95.3 95.3 95.3 95.3 95.3 95.3 95.3

Shared LOS: 95.3 95.3 95.3 95.3 95.3 95.3 95.3 95.3 95.3 95.3 95.3

ApproachDel: 95.3 95.3 95.3 95.3 95.3 95.3 95.3 95.3 95.3 95.3 95.3

ApproachLOS: 95.3 95.3 95.3 95.3 95.3 95.3 95.3 95.3 95.3 95.3 95.3

Note: Queue reported is the number of cars per lane.

Tier 4b WE Mon Jan 4, 2010 09:42:38 Page 19-1  
19th Ave CS  
Tier 4b

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1160 19th / Holloway

Cycle (sec): 120 Critical Vol./Cap.(X): 1.005

Loss Time (sec): 32 Average Delay (sec/veh): 47.9

Optimal Cycle: 180 Level of Service: D

Street Name: 19th Holloway

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted

Rights: Include Include Include Include

Min. Green: 0 59 59 0 61 61 32 32 32 32 30 30

Y+R: 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0

Lanes: 0 0 2 1 0 0 0 4 0 1 0 1 0 1 0 1 0

Volume Module:

Base Vol: 0 2096 105 0 2538 96 61 96 64 36 148 34

Growth Adj: 1.23 1.12 1.15 1.18 1.18 1.27 1.15 1.19 1.18 1.27 1.35 1.23

Initial Bse: 0 2338 121 0 2991 122 70 114 76 46 200 42

Added Vol: 0 183 31 0 267 60 51 50 29 104 118 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 2521 152 0 3258 182 121 164 105 150 318 42

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 2572 155 0 3325 185 124 168 107 153 325 43

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 2572 155 0 3325 185 124 168 107 153 325 43

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 0 2572 155 0 3325 185 124 168 107 153 325 43

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 1.00 0.88 0.88 1.00 0.89 0.83 0.60 0.60 0.60 0.66 0.66

Lanes: 0.00 2.83 0.17 0.00 4.00 1.00 0.62 0.84 0.54 0.59 1.25 0.16

Final Sat: 0 4751 287 0 6778 1583 709 960 613 739 1574 207

Capacity Analysis Module:

Vol/Sat: 0.00 0.54 0.54 0.00 0.49 0.12 0.17 0.17 0.17 0.21 0.21 0.21

Crit Moves: \*\*\*\*

Green/Cycle: 0.00 0.50 0.50 0.00 0.50 0.24 0.24 0.24 0.24 0.24 0.24 0.24

Volume/Cap: 0.00 1.07 1.07 0.00 0.97 0.23 0.73 0.73 0.73 0.86 0.86 0.86

Delay/Veh: 0.0 65.2 65.2 0.0 33.3 13.9 51.9 51.9 51.9 60.3 60.3 60.3

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 65.2 65.2 0.0 33.3 13.9 51.9 51.9 51.9 60.3 60.3 60.3

LOS by Move: A E A C B D D D E E E

HCW2kAvgQ: 0 45 45 0 37 3 9 9 9 13 13 13

Note: Queue reported is the number of cars per lane.

19th Ave CS

Tier 4b

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\* Intersection #1270 Lake Merced / Brotherhood \*\*\*\*\*

Cycle (sec): 110 Critical Vol./Cap.(X): 1.906  
Loss Time (sec): 15 Average Delay (sec/veh): 119.1  
Optimal Cycle: 180 Level Of Service: F\*\*\*\*\* Street Name: Lake Merced Brotherhood \*\*\*\*\*  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - RControl: Permitted Protected Split Phase Split Phase  
Rights: Ovl Include Ovl  
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
Y+R: 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0  
Lanes: 0 0 2 0 1 2 0 1 0 0 0 0 0 0 0 0 1 0 0 0 2Volume Module:  
Base Vol: 0 535 223 1076 498 0 0 0 0 216 0 1034  
Growth Adj: 1.71 1.12 1.14 1.17 1.18 1.74 1.14 1.16 1.17 1.74 2.31 1.71  
Initial Bse: 0 597 254 1260 587 0 0 0 0 376 0 1769  
Added Vol: 0 322 0 441 236 0 0 0 0 0 0 621  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 919 254 1701 823 0 0 0 0 376 0 2390  
User Adj: 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 937 259 1736 0 0 0 0 0 384 0 2439  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 937 259 1736 0 0 0 0 0 384 0 2439  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 937 259 1736 0 0 0 0 0 384 0 2439Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.83 0.90 1.00 1.00 1.00 1.00 1.00 0.93 1.00 0.73  
Lanes: 0.00 2.00 1.00 2.00 1.00 0.00 0.00 0.00 0.00 1.00 0.00 2.00  
Final Sat.: 0 3538 1583 3432 1900 0 0 0 0 1769 0 2786Capacity Analysis Module:  
Vol/Sat: 0.00 0.26 0.16 0.51 0.00 0.00 0.00 0.00 0.00 0.22 0.00 0.88  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.18 0.18 0.45 0.46 0.69 0.69 0.00 0.00 0.00 0.22 0.22 0.73  
Volume/Cap: 0.00 1.46 0.37 1.09 0.00 0.00 0.00 0.00 0.00 1.00 0.00 1.20  
Delay/Veh: 0.0 259 17.4 75.9 0.0 0.0 0.0 0.0 0.0 87.4 0.0 111.7  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 259 17.4 75.9 0.0 0.0 0.0 0.0 0.0 87.4 0.0 111.7  
LOS by Move: A B E A A A A A A F A F  
HCM2kAvgQ: 0 37 5 42 0 0 0 0 0 19 0 77

\*\*\*\*\* Note: Queue reported is the number of cars per lane. \*\*\*\*\*



Tier 4C Conditions  
Weekday AM Peak Hour

Scenario: Tier 4c AM Scenario Report

Command: Default Command  
Volume: Tier 4c AM  
Geometry: Tier 4c AM  
Impact Fee: Default Impact Fee  
Trip Generation: Projects AM  
Trip Distribution: AM  
Paths: Tier 4c  
Routes: Tier 4  
Configuration: Tier 4

Impact Analysis Report  
Level Of Service

Intersection	Base		Future		Change
	Del/	V/	Del/	V/	in
	LOS	Veh	LOS	Veh	C
	A	C	A	C	
#1010 Claremont / Taraval / Dewey /	6.8	0.650	7.0	0.665	+ 0.015 V/C
#1020 Santa Clara / Portola / Vicent	29.7	0.837	40.2	0.960	+10.494 D/V
#1030 Junipero Serra / Sloat / West	89.5	1.076	95.9	1.094	+ 6.319 D/V
#1040 Junipero Serra / Ocean / Euca	40.4	0.758	46.9	0.802	+ 6.482 D/V
#1050 Junipero Serra / Winston / Mer	34.6	0.632	38.3	0.772	+ 3.680 D/V
#1060 Junipero Serra / Holloway	32.7	0.675	34.8	0.716	+ 2.163 D/V
#1070 Junipero Serra / 19th	34.0	0.756	57.4	0.776	+23.467 D/V
#1075 Junipero Serra / Chumasero	7.3	0.832	24.5	0.997	+17.226 D/V
#1080 Junipero Serra / I-280 NB On-R	40.2	0.788	40.4	0.799	+ 0.208 D/V
#1090 Junipero Serra / I-280 SB On-R	20.4	0.568	20.4	0.620	-0.007 D/V
#1100 19th / Taraval	25.5	0.815	28.9	0.829	+ 3.420 D/V
#1110 19th / Sloat	107.3	1.464	119.3	1.508	+11.977 D/V
#1120 19th / Ocean	41.4	1.084	46.1	1.093	+ 4.780 D/V
#1130 19th / Euca	21.0	0.831	23.1	0.865	+ 2.060 D/V
#1140 19th / Winston	50.0	0.977	84.1	1.322	+34.127 D/V
#1150 19th / Buckingham	57.6	0.679	77.7	0.826	+20.071 D/V
#1160 19th / Holloway	6.2	0.696	61.5	0.776	+55.333 D/V
#1170 19th / Crespi	21.7	0.619	74.1	0.640	+52.433 D/V
#1181 Chumasero / Brotherhood	13.8	0.640	19.7	0.702	+ 5.926 D/V
#1182 Thomas More / brotherhood	15.7	0.611	23.0	0.747	+ 7.345 D/V
#1190 Sunset / Taraval	21.0	0.717	43.0	0.799	+21.964 D/V
#1200 Sunset / Ocean	12.0	0.605	13.7	0.664	+ 1.687 D/V
#1210 Skyline / Sloat / 39th	17.0	0.684	17.5	0.692	+ 0.009 V/C
#1221 Skyline / Lake Merced (WBR)	15.1	0.209	15.1	0.209	+ 0.010 D/V

Intersection	Base Del/ LOS	V/ C	Future Del/ LOS	Change in C
#1222 Skyline / Lake Merced (WBLT)	F 52.5	0.379	F 52.8	0.381 + 0.284 D/V
#1230 Sunset / Lake Merced	F 154.0	0.594	F 425.0	1.103 +270.952 D/
#1240 Lake Merced / Winston	C 28.7	0.691	F 99.9	0.805 +71.143 D/V
#1250 Lake Merced / Font	E 61.6	0.746	F 160.6	1.400 +98.995 D/V
#1261 Lake Merced / Vidal	D 45.6	0.728	D 45.2	0.925 -0.430 D/V
#1262 Lake Merced / Acevedo	D 47.6	0.738	D 43.3	0.962 -4.329 D/V
#1263 Lake Merced / Higuera	E 69.0	0.670	D 37.9	0.994 -31.032 D/
#1264 Lake Merced / Gonzalez	D 44.8	0.731	C 33.6	0.923 -11.209 D/
#1270 Lake Merced / Brotherhood	D 54.5	1.511	F 122.0	1.784 +67.580 D/V

Level Of Service Computation Report FHWA Roundabout Method (Future Volume Alternative)											
Intersection #1010 Claremont / Taraval / Dewey / Kensington											
Average Delay (sec/veh): 7.0 Level Of Service: A											
Street Name: Claremont Taraval / Dewey											
Approach: North Bound South Bound East Bound West Bound											
Movement: L - T - R L - T - R L - T - R L - T - R											
Control: Yield Sign Yield Sign Yield Sign Yield Sign											
Lanes: 1 1 1 1											
Volume Module:											
Base Vol:	3	7	221	10	60	37	1	231	27	313	337
Growth Adj:	1.03	1.02	1.02	1.02	1.02	1.03	1.02	1.01	1.02	1.03	1.04
Initial Bse:	3	7	224	10	61	38	1	233	27	323	351
Added Vol:	1	0	5	0	0	0	0	0	0	17	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	4	7	229	10	61	38	1	233	27	340	351
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	4	7	234	10	63	39	1	238	28	347	358
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	4	7	234	10	63	39	1	238	28	347	358
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	4	7	234	10	63	39	1	238	28	347	358
PCE Module:											
AutopCE:	4	7	234	10	63	39	1	238	28	347	358
TruckPCE:	0	0	0	0	0	0	0	0	0	0	0
ComboPCE:	0	0	0	0	0	0	0	0	0	0	0
BicyclePCE:	0	0	0	0	0	0	0	0	0	0	0
AdjVolume:	4	7	234	10	63	39	1	238	28	347	358
Delay Module: >> Time Period: 0.25 hours <<											
CircVolume:	250			709				420		13	
MaxVolume:	1065			817				973		1193	
PedVolume:	0			0				0		0	
AdjMaxVol:	1065			817				973		1193	
ApproachVol:	246			112				267		793	
ApproachV/C:	0.23			0.14				0.27		0.66	
ApproachDel:	4.4			5.1				5.1		8.8	
ApproachLOS:	A			A				A		A	
Queue:	0.9			0.5				1.1		5.4	



19th Ave CS  
Tier 4c

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1030 Junipero Serra / Sloat / West Portal / St. Francis  
\*\*\*\*\*  
Cycle (sec): 105 Critical Vol./Cap.(X): 1.094  
Loss Time (sec): 16 Average Delay (sec/veh): 95.9  
Optimal Cycle: 180 Level Of Service: F  
\*\*\*\*\*

Street Name: Junipero Serra / West Portal Sloat / St. Francis  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Protected Permitted Split Phase Split Phase  
Rights: Include Ignore Include  
Min. Green: 16 48 48 27 27 27 20 20 20 20 20 20  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 3 0 1 1 0 0 0 2 1 0 3 0 1 0 1 0 1 0

Volume Module:  
Base Vol: 972 1137 20 0 1092 176 646 416 322 23 347 8  
Growth Adj: 1.16 1.14 1.16 1.14 1.09 1.14 1.16 1.19 1.14 1.14 1.19 1.16  
Initial Bse: 1129 1292 23 0 1192 200 750 494 367 26 412 9  
Added Vol: 22 110 0 0 53 0 2 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 1151 1402 23 0 1245 200 752 494 374 26 412 9  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 1174 1431 24 0 1271 205 768 504 0 27 420 9  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 1174 1431 24 0 1271 205 768 504 0 27 420 9

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.89 0.92 0.92 1.00 0.88 0.88 0.89 0.97 1.00 0.93 0.93 0.93  
Lanes: 3.00 1.97 0.03 0.00 2.58 0.42 3.00 1.00 1.00 0.12 1.84 0.04  
Final Sat.: 5096 3438 57 0 4329 697 5096 1843 1900 206 3237 73

Capacity Analysis Module:  
Vol/Sat: 0.23 0.42 0.42 0.00 0.29 0.29 0.15 0.27 0.00 0.13 0.13 0.13  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.18 0.44 0.44 0.00 0.26 0.26 0.22 0.22 0.00 0.19 0.19 0.19  
Volume/Cap: 1.26 0.95 0.95 0.00 1.14 1.14 0.69 1.26 0.00 0.68 0.68 0.68  
Delay/Veh: 168.3 37.1 37.1 0.0 113 112.5 41.5 177 0.0 45.1 45.1 45.1  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 168.3 37.1 37.1 0.0 113 112.5 41.5 177 0.0 45.1 45.1 45.1  
LOS by Move: F D D A F F A D D D D  
HCM2kAvGQ: 23 23 23 0 29 29 9 31 0 8 8 8  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4c

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1020 Santa Clara / Portola / Vicente  
\*\*\*\*\*  
Cycle (sec): 80 Critical Vol./Cap.(X): 0.960  
Loss Time (sec): 11 Average Delay (sec/veh): 40.2  
Optimal Cycle: 124 Level Of Service: D  
\*\*\*\*\*

Street Name: Santa Clara / Vicente Portola  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Protected Permitted Split Phase Split Phase  
Rights: Include Ignore Include  
Min. Green: 23 23 23 23 23 23 9 36 36 9 36 36  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 1 0 0 0 0 1 0 0 1 0 1 0 1 0

Volume Module:  
Base Vol: 18 264 86 82 202 30 24 1057 17 120 859 81  
Growth Adj: 1.05 1.04 1.09 1.12 1.10 1.08 1.09 1.13 1.12 1.08 1.05 1.05  
Initial Bse: 19 276 94 92 223 32 26 1197 19 129 903 85  
Added Vol: 0 0 26 0 4 0 131 0 0 79 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 19 276 94 118 223 36 26 1328 19 129 982 85  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 19 281 96 120 227 37 27 1355 19 132 1002 87  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 19 281 96 120 227 37 27 1355 19 132 1002 87

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.92 0.92 0.92 0.56 0.56 0.56 0.93 0.93 0.93 0.93 0.92 0.92  
Lanes: 0.05 0.71 0.24 0.31 0.59 0.10 1.00 1.97 0.03 1.00 1.84 0.16  
Final Sat.: 85 1248 424 330 625 102 1769 3481 50 1769 3217 278

Capacity Analysis Module:  
Vol/Sat: 0.23 0.23 0.23 0.36 0.36 0.36 0.02 0.39 0.39 0.07 0.31 0.31  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.30 0.30 0.30 0.30 0.30 0.30 0.11 0.45 0.45 0.11 0.45 0.45  
Volume/Cap: 0.75 0.75 0.75 1.21 1.21 1.21 0.13 0.87 0.87 0.66 0.69 0.69  
Delay/Veh: 34.8 34.8 34.8 149.4 149.4 149.4 26.4 26.4 26.4 50.1 20.1 20.1  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 34.8 34.8 34.8 149.4 149.4 149.4 26.4 26.4 26.4 50.1 20.1 20.1  
LOS by Move: C C C F F F C C D C C  
HCM2kAvGQ: 11 11 11 21 21 21 1 19 19 4 12 12  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4cLevel Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)\*\*\*\*\*  
Intersection #1040 Junipero Serra / Ocean / Eucalyptus  
\*\*\*\*\*Cycle (sec): 100 Critical Vol./Cap.(X): 0.802  
Loss Time (sec): 14 Average Delay (sec/veh): 46.9  
Optimal Cycle: 100 Level Of Service: DStreet Name: Junipero Serra Ocean / Eucalyptus  
Approach: North Bound South Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - RControl: Protected Protected Protected Permitted Permitted  
Rights: Include Include Ovl Ovl  
Min. Green: 11 43 43 16 48 48 27 27 27 27 27 27  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 1 0 2 1 0 2 0 2 1 0 1 0 1 0 1 0 1Volume Module:  
Base Vol: 189 1678 46 326 1061 90 85 384 45 54 368 324  
Growth Adj: 1.16 1.14 1.16 1.14 1.16 1.19 1.14 1.14 1.19 1.16  
Initial Bse: 220 1907 53 371 1159 103 99 456 51 62 437 376  
Added Vol: 0 107 4 14 42 4 2 16 0 1 33 23  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 220 2014 57 385 1201 107 101 472 51 63 470 399  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 224 2055 59 393 1225 109 103 481 52 64 479 407  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 224 2055 59 393 1225 109 103 481 52 64 479 407Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.92 0.88 0.88 0.91 0.89 0.89 0.60 0.60 0.83 0.96 0.96 0.83  
Lanes: 1.00 2.92 0.88 2.00 2.76 0.24 0.35 1.65 1.00 0.12 0.88 1.00  
Final Sat: 1751 4873 139 3466 4659 413 403 1889 1583 214 1605 1583Capacity Analysis Module:  
Vol/Sat: 0.13 0.42 0.42 0.11 0.26 0.26 0.25 0.25 0.03 0.30 0.30 0.26  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.11 0.43 0.43 0.16 0.48 0.48 0.27 0.27 0.38 0.27 0.27 0.43  
Volume/Cap: 1.16 0.98 0.98 0.71 0.55 0.55 0.94 0.94 0.09 1.11 1.11 0.60  
Delay/Veh: 160.1 39.5 39.5 47.3 15.5 15.5 60.4 60.4 20.2 109.2 109 25.7  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 160.1 39.5 39.5 47.3 15.5 15.5 60.4 60.4 20.2 109.2 109 25.7  
LOS by Move: F D D B B E E C F F C  
HCM2kavqg: 10 23 23 5 8 8 14 14 1 27 27 10

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4c

## Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #1050 Junipero Serra / Winston / Mercedes  
\*\*\*\*\*Cycle (sec): 100 Critical Vol./Cap.(X): 0.772  
Loss Time (sec): 14 Average Delay (sec/veh): 38.3  
Optimal Cycle: 100 Level Of Service: DStreet Name: Junipero Serra Winston / Mercedes  
Approach: North Bound South Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - RControl: Protected Protected Protected Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 19 40 40 19 40 40 27 27 27 27 27 27  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 0 1 0 1Volume Module:  
Base Vol: 186 1681 29 103 1024 72 80 63 73 64 147 62  
Growth Adj: 1.07 1.14 1.16 1.14 1.09 1.05 1.16 1.19 1.14 1.05 1.00 1.07  
Initial Bse: 199 1911 34 117 1118 75 93 75 83 67 147 66  
Added Vol: 56 38 4 1 -24 65 73 48 29 -6 82 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 255 1949 38 118 1094 140 166 123 112 61 229 66  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 260 1988 38 121 1117 143 169 125 115 62 234 68  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 260 1988 38 121 1117 143 169 125 115 62 234 68Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.93 0.89 0.89 0.93 0.88 0.88 0.46 0.98 0.83 0.64 0.98 0.83  
Lanes: 1.00 2.94 0.06 1.00 2.66 0.34 1.00 1.00 1.00 1.00 1.00 1.00  
Final Sat: 1769 4972 96 1769 4429 568 868 1862 1583 1216 1862 1583Capacity Analysis Module:  
Vol/Sat: 0.15 0.40 0.40 0.07 0.25 0.25 0.20 0.07 0.07 0.05 0.13 0.04  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.19 0.40 0.40 0.19 0.40 0.40 0.27 0.27 0.27 0.27 0.27 0.27  
Volume/Cap: 0.77 1.00 1.00 0.36 0.63 0.63 0.72 0.25 0.27 0.19 0.46 0.16  
Delay/Veh: 54.3 46.8 46.8 38.2 23.0 23.0 50.7 29.8 30.3 29.4 33.5 28.6  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 54.3 46.8 46.8 38.2 23.0 23.0 50.7 29.8 30.3 29.4 33.5 28.6  
LOS by Move: D D D C C C D C C C C C  
HCM2kavqg: 7 25 25 3 10 10 4 3 3 2 6 2

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4c

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1060 Junipero Serra / Holloway  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.716  
Loss Time (sec): 14 Average Delay (sec/veh): 34.8  
Optimal Cycle: 100 Level Of Service: C  
\*\*\*\*\*

Street Name: Junipero Serra Holloway  
Approach: North Bound South Bound West Bound  
Movement: L - T - R L - T - R L - T - R  
-----|-----|-----|-----|  
Control: Protected Protected Protected Permitted Permitted  
Rights: Include Include Include Include Include  
Min. Green: 19 39 39 19 39 39 28 28 28 28 28 28  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 1 0 2 1 0 1 0 2 1 0 1 0 1 0 1 0 1

Volume Module:  
Base Vol: 234 1520 60 114 956 84 163 106 16 162 129 118  
Growth Adj: 1.08 1.14 1.07 1.05 1.09 1.06 1.07 1.01 1.05 1.06 1.02 1.08  
Initial Bse: 253 1728 64 120 1044 89 175 107 17 171 132 128  
Added Vol: 8 59 2 12 5 -18 25 -12 0 -6 -12 14  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 261 1787 66 132 1049 71 200 95 17 165 120 142  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 266 1823 68 135 1070 72 204 97 17 169 123 144  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 266 1823 68 135 1070 72 204 97 17 169 123 144  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 266 1823 68 135 1070 72 204 97 17 169 123 144

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.93 0.89 0.89 0.93 0.88 0.88 0.65 0.98 0.83 0.68 0.98 0.83  
Lanes: 1.00 2.89 0.11 1.00 2.81 0.19 1.00 1.00 1.00 1.00 1.00 1.00  
Final Sat: 1769 4877 181 1769 4719 319 1227 1862 1583 1289 1862 1583

Capacity Analysis Module:  
Vol/Sat: 0.15 0.37 0.37 0.08 0.23 0.23 0.17 0.05 0.01 0.13 0.07 0.09  
Crit Moves: \*\*\*  
Green/Cycle: 0.19 0.39 0.39 0.19 0.39 0.39 0.28 0.28 0.28 0.28 0.28 0.28  
Volume/Cap: 0.79 0.96 0.96 0.40 0.58 0.58 0.59 0.19 0.04 0.47 0.24 0.33  
Delay/Veh: 55.9 39.5 39.5 39.0 23.0 23.0 38.5 28.1 26.4 34.1 28.8 30.5  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 55.9 39.5 39.5 39.0 23.0 23.0 39.5 28.1 26.4 34.1 28.8 30.5  
LOS by Move: E D D D C C C C C C C C  
HCM2kAvgQ: 7 20 20 3 9 9 6 2 0 5 3 4

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4c

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1070 Junipero Serra / 19th  
\*\*\*\*\*  
Cycle (sec): 110 Critical Vol./Cap.(X): 0.776  
Loss Time (sec): 0 Average Delay (sec/veh): 57.4  
Optimal Cycle: 83 Level Of Service: E  
\*\*\*\*\*

Street Name: Junipero Serra 19th  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
-----|-----|-----|-----|  
Control: Split Phase Split Phase Split Phase Permitted Permitted  
Rights: Include Ignore Ovl Include Include  
Min. Green: 46 46 46 18 18 18 9 9 9 9 9 9  
Y+R: 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0  
Lanes: 3 0 1 1 0 0 0 4 0 1 0 0 1 0 4 0 0 1 0

Volume Module:  
Base Vol: 2208 1679 8 0 1210 4 0 71 3047 0 56 62  
Growth Adj: 1.13 1.14 1.12 1.10 1.09 1.11 1.12 1.10 1.10 1.11 1.12 1.13  
Initial Bse: 2494 1908 9 0 1321 4 0 78 3345 0 63 70  
Added Vol: 117 54 3 0 -1 0 0 21 119 0 6 14  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 2611 1962 12 0 1320 4 0 99 3464 0 69 84  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 2664 2002 12 0 1347 0 0 101 3535 0 70 86  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 2664 2002 12 0 1347 0 0 101 3535 0 70 86  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 2664 2002 12 0 1347 0 0 101 3535 0 70 86

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.99 0.93 0.93 1.00 0.89 1.00 1.00 0.98 0.81 1.00 0.91 0.91  
Lanes: 3.00 1.99 0.01 0.00 4.00 1.00 1.00 1.00 4.00 0.00 0.45 0.55  
Final Sat: 5662 3513 21 0 6778 1900 0 1862 6128 0 776 948

Capacity Analysis Module:  
Vol/Sat: 0.47 0.57 0.57 0.00 0.20 0.00 0.00 0.05 0.58 0.00 0.09 0.09  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.46 0.46 0.46 0.24 0.24 0.24 0.13 0.13 0.59 0.13 0.13 0.13  
Volume/Cap: 1.02 1.24 1.24 0.00 0.83 0.00 0.00 0.42 0.98 0.00 0.70 0.70  
Delay/Veh: 48.1 138 137.5 0.0 44.7 0.0 0.0 49.3 23.7 0.0 62.2 62.2  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 48.1 138 137.5 0.0 44.7 0.0 0.0 49.3 23.7 0.0 62.2 62.2  
LOS by Move: D F F A D A C A E E  
HCM2kAvgQ: 35 59 59 0 13 0 0 3 38 0 7 7

Note: Queue reported is the number of cars per lane.



19th Ave CS

Tier 4c

## Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1075 Junipero Serra / Chumaseo

Cycle (sec): 90 Critical Vol./Cap.(X): 0.997  
Loss Time (sec): 10 Average Delay (sec/veh): 24.5  
Optimal Cycle: 176 Level Of Service: C

Street Name: Junipero Serra Chumaseo  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Include Split Phase Split Phase  
Rights: Include Include Ovl Include Include  
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 1 0 4 0 0 0 0 3 1 0 0 0 0 0 1 0 0 0 0 0

Volume Module:  
Base Vol: 4 3895 0 0 4214 75 0 0 107 0 0 0  
Growth Adj: 1.13 1.14 1.12 1.10 1.03 1.11 1.00 1.00 1.05 1.00 1.00 1.00  
Initial Bse: 5 4440 0 0 4340 83 0 0 112 0 0 0  
Added Vol: 66 174 0 0 180 -62 0 0 206 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 71 4614 0 0 4520 21 0 0 318 0 0 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 72 4708 0 0 4613 22 0 0 325 0 0 0  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 72 4708 0 0 4613 22 0 0 325 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 72 4708 0 0 4613 22 0 0 325 0 0 0

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.93 0.89 1.00 1.00 0.89 0.89 1.00 1.00 0.85 1.00 1.00 1.00  
Lanes: 1.00 4.00 0.00 0.00 3.98 0.02 0.00 0.00 1.00 0.00 0.00 0.00  
Final Sat: 1769 6778 0 0 6739 32 0 0 1611 0 0 0

Capacity Analysis Module:  
Vol/Sat: 0.04 0.69 0.00 0.00 0.68 0.68 0.00 0.00 0.20 0.00 0.00 0.00  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.04 0.73 0.00 0.00 0.69 0.69 0.00 0.00 0.20 0.00 0.00 0.00  
Volume/Cap: 0.00 0.96 0.00 0.00 1.00 1.00 0.00 0.00 1.00 0.00 0.00 0.00  
Delay/Veh: 148.0 16.6 0.0 0.0 26.5 26.5 0.0 0.0 84.8 0.0 0.0 0.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 148.0 16.6 0.0 0.0 26.5 26.5 0.0 0.0 84.8 0.0 0.0 0.0  
LOS by Move: F B A A C C A A F A A A  
HCM2KAVQ: 5 38 0 0 39 39 0 0 14 0 0 0

Note: Queue reported is the number of cars per lane.

19th Ave CS

Tier 4c

## Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1080 Junipero Serra / I-280 NB On-Ramp / John Daly

Cycle (sec): 125 Critical Vol./Cap.(X): 0.799  
Loss Time (sec): 12 Average Delay (sec/veh): 40.4  
Optimal Cycle: 82 Level Of Service: D

Street Name: Junipero Serra / I-280 NB On-Ramp John Daly  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Split Phase Split Phase Split Phase Split Phase  
Rights: Ovl Include Include Ovl  
Min. Green: 6 6 6 6 6 6 6 6 6 6 6 6  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 2 0 1 1 1 1 0 0 1 1 2 1 0 1 1 1 2 0 1

Volume Module:  
Base Vol: 337 335 364 104 169 262 665 779 99 59 746 303  
Growth Adj: 1.05 1.12 1.14 1.00 1.00 1.00 1.14 1.16 1.00 1.00 1.00 1.05  
Initial Bse: 354 374 414 104 169 262 756 902 99 59 746 318  
Added Vol: 73 13 0 0 0 0 1 11 201 0 0 7  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 427 387 414 104 169 262 757 913 300 59 746 325  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 435 395 422 106 172 267 773 931 306 60 761 332  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 435 395 422 106 172 267 773 931 306 60 761 332  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 435 395 422 106 172 267 773 931 306 60 761 332

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.90 0.86 0.86 0.93 0.89 0.89 0.87 0.89 0.89 0.89 0.89 0.83  
Lanes: 2.00 1.45 1.55 1.00 0.78 1.22 2.00 2.00 1.00 1.00 3.00 1.00  
Final Sat: 3432 2365 2528 1769 1327 2058 3289 3391 1695 1688 5063 1583

Capacity Analysis Module:  
Vol/Sat: 0.13 0.17 0.17 0.06 0.13 0.13 0.23 0.27 0.18 0.04 0.15 0.21  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.21 0.21 0.40 0.16 0.16 0.51 0.34 0.34 0.34 0.19 0.19 0.35  
Volume/Cap: 0.61 0.80 0.42 0.37 0.80 0.26 0.68 0.80 0.53 0.19 0.80 0.60  
Delay/Veh: 46.3 51.4 27.4 47.4 58.4 17.6 35.8 39.0 33.0 42.7 53.0 35.1  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 46.3 51.4 27.4 47.4 58.4 17.6 35.8 39.0 33.0 42.7 53.0 35.1  
LOS by Move: D D C D E B D D C D D D  
HCM2KAVQ: 8 12 8 4 10 5 13 17 9 2 12 11

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4c

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1090 Junipero Serra / I-280 SB On-Ramp / John Daly  
\*\*\*\*\*  
Cycle (sec): 120 Critical Vol./Cap.(X): 0.620  
Loss time (sec): 8 Average Delay (sec/veh): 20.4  
Optimal Cycle: 41 Level Of Service: C  
\*\*\*\*\*

Street Name: Junipero Serra / I-280 SB On-Ramp John Daly  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Split Phase Split Phase Split Phase Split Phase  
Rights: Ovl Include Include Include  
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 0 2 0 0 0 0 0 0 2 1 0 2 0 2 0 0

Volume Module:  
Base Vol: 0 0 316 0 0 0 1227 419 499 1001 0  
Growth Adj: 1.02 1.00 1.01 1.13 1.23 1.13 1.01 1.03 1.13 1.03 1.02  
Initial Bse: 0 0 320 0 0 0 1261 472 564 1035 0  
Added Vol: 0 0 23 0 0 0 190 47 0 73 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 0 343 0 0 0 1451 519 564 1108 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 0 350 0 0 0 1480 530 575 0  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 0 350 0 0 0 1480 530 575 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 0 350 0 0 0 1480 530 575 0

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 1.00 0.73 1.00 1.00 1.00 1.00 0.86 0.86 0.90 0.95 1.00  
Lanes: 0.00 0.00 2.00 0.00 0.00 0.00 0.00 2.21 0.79 2.00 2.00 0.00  
Final Sat: 0 0 2786 0 0 0 3598 1287 3432 3610 0

Capacity Analysis Module:  
Vol/Sat: 0.00 0.00 0.13 0.00 0.00 0.00 0.00 0.41 0.41 0.17 0.00 0.00  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.00 0.27 0.00 0.00 0.00 0.00 0.66 0.66 0.27 0.00 0.00  
Volume/Cap: 0.00 0.00 0.47 0.00 0.00 0.00 0.00 0.62 0.62 0.62 0.00 0.00  
Delay/Veh: 0.0 0.0 37.0 0.0 0.0 0.0 0.0 11.9 11.9 39.7 0.0 0.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 0.0 37.0 0.0 0.0 0.0 0.0 11.9 11.9 39.7 0.0 0.0  
LOS by Move: A A D A A A A B B A A A  
HCM2kAvgQ: 0 0 6 0 0 0 0 16 16 9 0 0

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4c

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1100 19th / Taraval  
\*\*\*\*\*  
Cycle (sec): 90 Critical Vol./Cap.(X): 0.829  
Loss time (sec): 10 Average Delay (sec/veh): 28.9  
Optimal Cycle: 89 Level Of Service: C  
\*\*\*\*\*

Street Name: 19th Taraval  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 56 56 56 56 56 56 23 23 23 23 23 23  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 1 1 0 0 1 0 0 1 0 1 0

Volume Module:  
Base Vol: 0 2276 57 2 2656 58 2 201 50 0 228 50  
Growth Adj: 1.10 1.14 1.06 1.04 1.09 1.08 1.06 1.00 1.04 1.08 1.07 1.10  
Initial Bse: 0 2587 61 2 2900 63 2 201 52 0 244 55  
Added Vol: 0 146 3 0 60 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2733 64 2 2960 63 2 201 52 0 244 55  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2789 65 2 3021 64 2 205 53 0 249 56  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2789 65 2 3021 64 2 205 53 0 249 56  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2789 65 2 3021 64 2 205 53 0 249 56

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 0.84 0.84 0.84 0.86 0.86 0.86 0.95 0.90 0.90  
Lanes: 0.00 2.93 0.07 0.01 2.93 0.06 0.02 1.57 0.41 0.00 1.63 0.37  
Final Sat: 0 4953 115 3 4662 99 27 2571 665 0 2805 634

Capacity Analysis Module:  
Vol/Sat: 0.00 0.56 0.56 0.65 0.65 0.65 0.08 0.08 0.08 0.00 0.09 0.09  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.63 0.63 0.63 0.63 0.63 0.26 0.26 0.26 0.00 0.26 0.26  
Volume/Cap: 0.00 0.89 0.89 1.02 1.02 1.02 0.31 0.31 0.31 0.00 0.35 0.35  
Delay/Veh: 0.0 18.0 18.0 39.1 39.1 39.1 28.1 28.1 28.1 0.0 28.5 28.5  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 18.0 18.0 39.1 39.1 39.1 28.1 28.1 28.1 0.0 28.5 28.5  
LOS by Move: A B B D D D C C C A C C  
HCM2kAvgQ: 0 28 28 42 42 42 3 3 3 0 4 4

Note: Queue reported is the number of cars per lane.

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1120 19th / Ocean

Cycle (sec): 90 Critical Vol./Cap.(X): 1.093  
Loss Time (sec): 9 Average Delay (sec/veh): 46.1  
Optimal Cycle: 180 Level Of Service: D

Street Name:										19th										Ocean									
Approach:										North Bound					South Bound					East Bound					West Bound				
Movement:										L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:										Permitted					Permitted					Permitted					Permitted				
Rights:										WideBypass					WideBypass					Include					Include				
Min. Green:										54		54		54	54		54	54		54	26		26	26		26	26		26
Y+R:										4.0		4.0		4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		4.0
Lanes:										0	1	1	0	0	0	2	1	0	1	0	0	1	0	0	0	1	0	0	0

Volume Module:											
Base Vol:	2	1809	45	0	2766	187	83	274	47	21	230
Growth Adj:	1.16	1.14	1.16	1.14	1.09	1.14	1.16	1.19	1.14	1.14	1.19
Initial Bse:	2	2056	52	0	3020	213	96	325	54	24	273
Added Vol:	0	112	0	0	35	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	2	2168	52	0	3055	213	96	325	54	24	273
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	2	2212	53	0	3118	217	98	332	55	24	278
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	2	2212	53	0	3118	217	98	332	55	24	278
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	2	2212	53	0	3118	217	98	332	55	24	278

Saturation Flow Module:										
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.78	0.78	0.78	1.00	0.88	0.88	0.83	0.96	0.96	0.80
Lanes:	0.01	2.92	0.07	0.00	2.80	0.20	1.00	0.86	0.14	0.05
Final Sat:	5	4336	105	0	4704	328	1570	1565	258	76
										867
										580

Capacity Analysis Module:											
Vol/Sat:	0.51	0.51	0.51	0.00	0.66	0.66	0.06	0.21	0.21	0.32	0.32
Crit Moves:				***						***	***
Green/Cycle:	0.60	0.60	0.60	0.60	0.60	0.60	0.29	0.29	0.29	0.29	0.29
Volume/Cap:	0.85	0.85	0.85	0.00	1.10	1.10	0.21	0.72	0.72	1.09	1.09
Delay/Veh:	12.1	12.1	12.1	0	63.0	63.0	25.0	36.5	36.5	100.8	101
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	12.1	12.1	12.1	0	63.0	63.0	25.0	36.5	36.5	100.8	101
LOS by Move:	B	B	B	A	E	E	C	D	D	F	F
HCM2kAvgQ:	16	16	16	0	46	46	2	10	10	23	23
*****											
Note: Queue reported is the number of cars per lane.											
*****											

Note: Queue reported is the number of cars per lane.

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #110 19th / Sloat

Cycle (sec): 90 Critical Vol./Cap.(X): 1.508  
Loss Time (sec): 9 Average Delay (sec/veh): 119.3  
Optimal Cycle: 180 Level Of Service: F

Street Name: 19th Sloat											
Approach:		North Bound			South Bound			East Bound		West Bound	
Movement:		L	-	T	-	R	L	-	T	-	R
Control:		Permitted			Protected			Permit+Prot		Permitted	
Rights:		Include			Include			Include		Include	
Min. Green:		33	33	33	12	49	49	4	32	32	23
Y+R:		10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Lanes:		0	0	2	1	0	1	0	1	1	0
		0	0	3	0	1					

Volume Module:												
Base Vol:	0	1964	25	312	2778	127	247	1029	62	0	873	403
Growth Adj:	1.16	1.14	1.16	1.14	1.09	1.14	1.16	1.19	1.14	1.14	1.19	1.16
Initial Bse:	0	2232	29	355	3034	145	287	1221	71	0	1036	468
Added Vol:	0	110	2	4	35	5	7	3	0	0	13	22
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	2342	31	359	3069	150	294	1224	71	0	1049	491
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	0	2390	32	367	3131	153	300	1249	72	0	1070	501
Reduc Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	2390	32	367	3131	153	300	1249	72	0	1070	501
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	2390	32	367	3131	153	300	1249	72	0	1070	501

Saturation Flow Module:										
Sat/Lane:		1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:		1.00	0.89	0.89	0.93	0.89	0.89	0.58	0.88	0.88
Lanes:		0.00	2.96	0.04	1.00	2.86	0.14	1.00	2.84	0.16
Final Sat.:		0	5007	66	1769	4813	235	1106	4729	273

Capacity Analysis Module:										
Vol/Sat:	0.00	0.48	0.48	0.21	0.65	0.65	0.27	0.26	0.26	0.00 0.21 0.32
Crit Moves:	0.00	0.37	0.37	0.15	0.52	0.52	0.38	0.38	0.38	0.00 0.26 0.26
Green/Cycle:	0.00	1.30	1.30	1.39	1.26	1.26	0.75	0.69	0.69	0.00 0.82 1.24
Volume/Cap:	0.0	166	166	237.4	137	137.5	36.1	24.8	0.0	37.6 160.4
Delay/Veh:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00 1.00 1.00
User DelAdj:	0.0	166	166	237.4	137	137.5	36.1	24.8	0.0	37.6 160.4
AdjDel/Veh:	0	49	49	25	66	66	10	12	0	13 29
LOS by Move:	A	F	F	F	F	F	D	C	A	D F F
HCM2kAvgQ:	0	49	49	25	66	66	10	12	0	13 29
*****										
Note: Queue reported is the number of cars per lane.										

Note: Queue reported is the number of cars per lane.



19th Ave CS  
Tier 4c

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1130 19th / Eucalyptus  
\*\*\*\*\*  
Cycle (sec): 90 Critical Vol./Cap.(X): 0.865  
Loss time (sec): 9 Average Delay (sec/veh): 23.1  
Optimal Cycle: 90 Level Of Service: C  
\*\*\*\*\*

Street Name: 19th Eucalyptus  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 56 56 56 25 25 25 25 25  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 0 2 1 0 1 1 0 0 0 1 0 0

Volume Module:  
Base Vol: 0 1848 21 0 2818 58 74 125 90 10 148 14  
Growth Adj: 1.16 1.14 1.16 1.14 1.16 1.19 1.14 1.14 1.19 1.16  
Initial Bse: 0 2100 24 0 3077 66 86 148 103 11 176 16  
Added Vol: 0 105 3 0 19 16 8 14 0 7 30 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2205 27 0 3096 82 94 162 103 18 206 16  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0.2250 28 0 3159 84 96 166 105 19 210 17  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2250 28 0 3159 84 96 166 105 19 210 17

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 1.00 0.89 0.89 0.66 0.66 0.94 0.94  
Lanes: 0.00 2.96 0.04 0.00 2.92 0.08 1.00 1.23 0.77 0.08 0.85 0.07  
Final Sat.: 0 5011 62 0 4932 131 1251 1533 969 136 1522 120

Capacity Analysis Module:  
Vol/Sat: 0.00 0.45 0.45 0.00 0.64 0.64 0.08 0.11 0.11 0.14 0.14 0.14  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.62 0.62 0.62 0.62 0.28 0.28 0.28 0.28 0.28 0.28  
Volume/Cap: 0.00 0.72 0.72 0.00 1.03 1.03 0.27 0.38 0.38 0.49 0.49  
Delay/Veh: 0.0 7.5 7.5 0.0 33.0 33.0 25.5 27.1 27.1 30.1 30.1  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 7.5 7.5 0.0 33.0 33.0 25.5 27.1 27.1 30.1 30.1  
LOS by Move: A A A A C C C C C C C C  
HCM2kAvgQ: 0 11 11 0 36 36 2 3 3 6 6 6  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4c

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1140 19th / Winston  
\*\*\*\*\*  
Cycle (sec): 90 Critical Vol./Cap.(X): 1.322  
Loss time (sec): 13 Average Delay (sec/veh): 84.1  
Optimal Cycle: 180 Level Of Service: F  
\*\*\*\*\*

Street Name: 19th Winston  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 15 43 43 43 43 43 18 18 18 18  
Y+R: 13.0 13.0 13.0 13.0 13.0 13.0 13.0 13.0 13.0 13.0  
Lanes: 2 0 2 1 0 0 0 3 0 1 1 1 0 1 0 1 0

Volume Module:  
Base Vol: 386 1920 59 0 2985 60 56 164 171 51 291 28  
Growth Adj: 1.06 1.14 1.00 1.00 1.09 1.04 1.00 1.00 1.00 1.04 1.06  
Initial Bse: 409 2182 59 0 3260 62 56 164 171 53 291 30  
Added Vol: 83 43 -30 0 -34 65 64 181 29 36 168 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 492 2225 29 0 3226 127 120 345 200 89 459 30  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 502 2271 30 0 3291 130 122 352 204 91 468 30  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 502 2271 30 0 3291 130 122 352 204 91 468 30

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.90 0.89 0.89 1.00 1.11 0.83 0.26 0.20 0.83 0.68 0.68  
Lanes: 2.00 2.96 0.04 0.00 3.00 1.00 1.00 2.00 1.00 0.31 1.59 0.10  
Final Sat.: 3432 5008 65 0 6354 1583 502 1583 395 2039 132

Capacity Analysis Module:  
Vol/Sat: 0.15 0.45 0.45 0.00 0.52 0.08 0.24 0.47 0.13 0.23 0.23 0.23  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.17 0.48 0.48 0.48 0.20 0.20 0.20 0.20 0.20 0.20 0.20  
Volume/Cap: 0.98 0.95 0.95 0.00 1.08 0.17 1.22 2.34 0.64 1.15 1.15  
Delay/Veh: 53.7 27.7 27.7 0.0 63.2 11.2 155.6 652 42.8 123.5 123.5  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 53.7 27.7 27.7 0.0 63.2 11.2 155.6 652 42.8 123.5 123.5  
LOS by Move: D C C A E B F F F F F F  
HCM2kAvgQ: 7 21 21 0 50 2 9 19 6 15 15  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4cLevel Of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1150 19th / Buckingham

Average Delay (sec/veh): 1.8 Worst Case Level Of Service: F [77.7]

Street Name: 19th North Bound South Bound East Bound West Bound

Approach: L - T - R L - T - R L - T - R L - T - R

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign

Rights: Include Include Include Include

Lanes: 0 0 3 0 0 0 3 0 1 0 0 0 1 0 0 0 0 0

Volume Module:

Base Vol: 0 2365 0 0 3145 61 0 0 122 0 0 0

Growth Adj: 1.00 1.14 1.04 1.02 1.09 1.00 1.04 1.00 1.02 1.00 1.00 1.00

Initial Bse: 0 2688 0 0 3434 61 0 0 124 0 0 0

Added Vol: 0 96 0 0 -28 59 0 0 29 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 2784 0 0 3406 120 0 0 153 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 2841 0 0 3476 122 0 0 156 0 0 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

FinalVolume: 0 2841 0 0 3476 122 0 0 156 0 0 0

Critical Gap Module:

Critical Gap:xxxxx xxxx xxxxx xxxxx xxxxx 6.9 xxxxx xxxx xxxxx

FollowUpfm:xxxxx xxxx xxxxx xxxxx xxxxx 3.3 xxxxx xxxx xxxxx

Capacity Module:

Conflict Vol: xxxx xxxx xxxxx xxxxx xxxxx 1159 xxxx xxxx xxxxx

Potent Cap.: xxxx xxxx xxxxx xxxxx xxxxx 189 xxxx xxxx xxxxx

Move Cap.: xxxx xxxx xxxxx xxxxx xxxxx 189 xxxx xxxx xxxxx

Volume/Cap: xxxx xxxx xxxxx xxxxx xxxxx 0.83 xxxx xxxx xxxxx

Level Of Service Module:

2Way95thQ: xxxx xxxx xxxxx xxxxx xxxxx 5.9 xxxxx xxxx xxxxx

Control Del:xxxxx xxxx xxxxx xxxxx xxxxx 77.7 xxxxx xxxx xxxxx

LOS by Move: \* \* \* \* \* LT - LTR - RT LT - LTR - RT LT - LTR - RT

Movement: \* \* \* \* \* LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx xxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx

SharedQueue:xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx

Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx

Shared LOS: \*

ApproachDel: xxxxxx 77.7 xxxxxx

ApproachLOS: \* \* \* \* \* F

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

19th Ave CS  
Tier 4cLevel Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1160 19th / Holloway

Cycle (sec): 110 Critical Vol./Cap.(X): 0.776

Loss Time (sec): 0 Average Delay (sec/veh): 61.5

Optimal Cycle: 79 Level Of Service: E

Street Name: 19th North Bound South Bound East Bound West Bound

Approach: L - T - R L - T - R L - T - R L - T - R

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted

Rights: Include Include Include Include

Min. Green: 48 48 48 48 48 48 48 48

Y+R: 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0

Lanes: 0 0 2 1 0 0 0 4 0 1 0 1 0 0 1 0 1 0

Volume Module:

Base Vol: 0 2288 130 0 3078 138 56 143 55 37 370 50

Growth Adj: 1.07 1.14 1.18 1.16 1.09 1.05 1.18 1.23 1.16 1.05 1.00 1.07

Initial Bse: 0 2601 154 0 3361 144 66 176 64 39 370 53

Added Vol: 0 29 -21 0 -22 22 66 34 85 -28 6 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 2630 133 0 3339 166 132 210 149 11 376 53

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 2683 135 0 3407 170 135 214 152 11 384 54

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 2683 135 0 3407 170 135 214 152 11 384 54

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 0 2683 135 0 3407 170 135 214 152 11 384 54

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 1.00 0.93 0.89 1.00 0.94 0.83 0.54 0.54 0.54 0.74 0.74 0.74

Lanes: 0.00 2.85 0.15 0.00 4.00 1.00 0.54 0.85 0.61 0.05 1.71 0.24

Final Sat.: 0 5033 254 0 7117 1583 554 879 624 68 2410 342

Capacity Analysis Module:

Vol/Sat: 0.00 0.53 0.53 0.00 0.48 0.11 0.24 0.24 0.24 0.16 0.16 0.16

Crit Moves: \*\*\*\*

Green/Cycle: 0.47 0.47 0.47 0.47 0.47 0.47 0.27 0.27 0.27 0.27 0.27 0.27

Volume/Cap: 0.00 1.13 1.13 0.00 1.02 0.23 0.90 0.90 0.90 0.90 0.90 0.90

Delay/Veh: 0.0 89.6 89.6 0.0 44.1 14.7 59.0 59.0 59.0 38.2 38.2 38.2

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 89.6 89.6 0.0 44.1 14.7 59.0 59.0 59.0 38.2 38.2 38.2

LOS by Move: A F F A D B E E D D D D

HCM2kAVQ: 0 48 46 0 33 2 12 12 12 8 8 8

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Tier 4c AM	Mon Jan 4, 2010 09:46:28	19th Ave CS	Tier 4c	Page 20-1
Level Of Service Computation Report				
2000 HCM Operations Method (Future Volume Alternative)				
Intersection #1170 19th / Crespi				
Cycle (sec):	110	Critical Vol./Cap.(X):	0.640	
Loss Time (sec):	0	Average Delay (sec/veh):	74.1	
Optimal Cycle:	95	Level Of Service:	E	
Street Name: 19th Crespi				
Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Protected	Permitted	Split Phase	Split Phase
Rights:	Include	Include	Include	Include
Min. Green:	20 48 48	53 53 53	22 22 22	0 0 0
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	1 0 3 0 0	0 0 3 1 0	1 0 0 0 1	0 0 0 0 0
Volume Module:				
Base Vol:	4 2266	0 0 3060	110 152	0 68
Growth Adj:	1.14 1.14	1.05 1.12	1.05 1.00	1.02 1.12 1.14
Initial Bse:	5 2576	0 0 3342	123 159	0 70
Added Vol:	62 61	0 0 102	-68 -53	0 0 0
PasserByVol:	0 0	0 0 0	0 0 0	0 0 0
Initial Fut:	67 2637	0 0 3444	55 106	0 108
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00
PHF Adj:	0.98 0.98	0.98 0.98	0.98 0.98	0.98 0.98
PHF Volume:	68 2690	0 0 3514	56 108	0 110
Reduced Vol:	0 0	0 0 0	0 0 0	0 0 0
Reduced Vol:	68 2690	0 0 3514	56 108	0 110
PCE Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00
MLF Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00
FinalVolume:	68 2690	0 0 3514	56 108	0 110
Saturation Flow Module:				
Sat/Lane:	1900 1900	1900 1900	1900 1900	1900 1900
Adjustment:	0.70 0.89	1.00 0.89	0.89 0.93	1.00 0.83
Lanes:	1.00 3.00	0.00 3.94	0.06 1.00	0.00 1.00
Final Sat:	1327 5083	0 0 6658	106 1769	0 1583
Capacity Analysis Module:				
Vol/Sat:	0.05 0.53	0.00 0.53	0.53 0.06	0.00 0.07
Crit Moves:	****	****	****	****
Green/Cycle:	0.42 0.42	0.57 0.57	0.57 0.25	0.25 0.00
Volume/Cap:	0.12 1.27	0.00 0.93	0.93 0.25	0.00 0.28
Delay/Veh:	17.6 152	0.0 0.0	19.1 34.6	0.0 35.3
User DelAdj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00
AdjDel/Veh:	17.6 152	0.0 0.0	19.1 34.6	0.0 35.3
LOS by Move:	B F A	A B A	B C A	D A A
HCM2kAvgQ:	1 60	0 0 26	3 0 3	0 0 0
Note: Queue reported is the number of cars per lane.				

Tier 4c AM	Mon Jan 4, 2010 09:46:28	19th Ave CS	Tier 4c	Page 21-1
Level Of Service Computation Report				
2000 HCM Operations Method (Future Volume Alternative)				
Intersection #1181 Chumassero / Brotherhood				
Cycle (sec):	100	Critical Vol./Cap.(X):	0.702	
Loss Time (sec):	8	Average Delay (sec/veh):	19.7	
Optimal Cycle:	91	Level Of Service:	B	
Street Name: Chumassero Brotherhood				
Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Split Phase	Split Phase	Protected	Permitted
Rights:	Include	Include	Include	Include
Min. Green:	0 0 0	15 15 15	21 47 47	21 47 47
Y+R:	11.0 11.0 11.0	11.0 11.0 11.0	11.0 11.0 11.0	11.0 11.0 11.0
Lanes:	0 0 1 0 0	0 0 1 0 0	1 0 2 0 0	0 0 2 1 0
Volume Module:				
Base Vol:	0 0	0 145	0 54	26 1538
Growth Adj:	1.08 1.06	1.07 1.01	1.00 1.02	1.07 1.08
Initial Bse:	0 0	0 147	0 55	28 1657
Added Vol:	0 0	0 65	0 -14	-18 559
PasserByVol:	0 0	0 0	0 0	0 0
Initial Fut:	0 0	0 212	0 41	10 2216
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00
PHF Adj:	0.98 0.98	0.98 0.98	0.98 0.98	0.98 0.98
PHF Volume:	0 0	0 216	0 42	10 2261
Reduced Vol:	0 0	0 0	0 0	0 0
Reduced Vol:	0 0	0 216	0 42	10 2261
PCE Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00
MLF Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00
FinalVolume:	0 0	0 216	0 42	10 2261
Saturation Flow Module:				
Sat/Lane:	1900 1900	1900 1900	1900 1900	1900 1900
Adjustment:	0.80 0.80	1.00 0.69	0.75 0.69	0.93 0.93
Lanes:	0.00 1.00	0.00 0.84	0.00 0.16	1.00 2.00
Final Sat:	0 1520	0 1098	0 213	1769 3538
Capacity Analysis Module:				
Vol/Sat:	0.00 0.00	0.00 0.20	0.00 0.20	0.01 0.64
Crit Moves:	****	****	****	****
Green/Cycle:	0.00 0.00	0.22 0.00	0.22 0.21	0.70 0.00
Volume/Cap:	0.00 0.00	0.90 0.00	0.90 0.03	0.91 0.00
Delay/Veh:	0.0 0.0	70.9 0.0	70.9 31.5	9.5 0.0
User DelAdj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00
AdjDel/Veh:	0.0 0.0	70.9 0.0	70.9 31.5	9.5 0.0
LOS by Move:	A A A	A E A	E C A	A A C
HCM2kAvgQ:	0 0 0	0 11	0 22	0 0 24
Note: Queue reported is the number of cars per lane.				



19th Ave CS  
Tier 4c

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1182 Thomas More / Brotherhood  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.747  
Loss Time (sec): 8 Average Delay (sec/veh): 23.0  
Optimal Cycle: 96 Level Of Service: C

Street Name: Thomas More Brotherhood  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Split Phase Split Phase Protected Protected  
Rights: Include Include Include Include  
Min. Green: 20 20 0 0 0 0 21 47 47 21 47 47  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 1 0 0 0 0 0 0 0 0 1 0 3 0 0

Volume Module:  
Base Vol: 44 0 99 0 0 0 0 1613 70 175 1808 0  
Growth Adj: 1.08 1.06 1.07 1.01 1.00 1.02 1.07 1.08 1.01 1.02 1.09 1.08  
Initial Bse: 47 0 106 0 0 0 0 1737 71 179 1978 0  
Added Vol: 0 0 0 0 0 0 0 624 0 0 145 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 47 0 106 0 0 0 0 2361 71 179 2123 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 48 0 108 0 0 0 0 2410 72 183 2166 0  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 48 0 108 0 0 0 0 2410 72 183 2166 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 48 0 108 0 0 0 0 2410 72 183 2166 0

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.88 1.00 0.88 1.00 1.00 1.00 1.00 0.89 0.89 0.93 0.89 1.00  
Lanes: 0.31 0.00 0.69 0.00 0.00 0.00 0.00 2.91 0.09 1.00 3.00 0.00  
Final Sat: 515 0 1149 0 0 0 0 4915 148 1769 5083 0

Capacity Analysis Module:  
Vol/Sat: 0.09 0.00 0.09 0.00 0.00 0.00 0.00 0.49 0.49 0.10 0.43 0.00  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.20 0.00 0.20 0.00 0.00 0.00 0.00 0.51 0.51 0.21 0.72 0.00  
Volume/Cap: 0.47 0.00 0.47 0.00 0.00 0.00 0.00 0.96 0.96 0.49 0.59 0.00  
Delay/Veh: 40.0 0.0 40.0 0.0 0.0 0.0 0.0 34.3 34.3 39.4 7.5 0.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 40.0 0.0 40.0 0.0 0.0 0.0 0.0 34.3 34.3 39.4 7.5 0.0  
LOS by Move: D A D A A A A C C D A A  
HCM2kavq: 5 0 5 0 0 0 0 29 29 5 12 0

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4c

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1190 Sunset / Taraval  
Cycle (sec): 60 Critical Vol./Cap.(X): 0.799  
Loss Time (sec): 10 Average Delay (sec/veh): 43.0  
Optimal Cycle: 60 Level Of Service: D

Street Name: Sunset Taraval  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 29 29 29 29 29 29 21 21 21 21 21 21  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 0 2 1 0 1 0 1 0 1 0

Volume Module:  
Base Vol: 0 2021 17 0 1965 11 79 190 53 83 169 38  
Growth Adj: 1.10 1.12 1.06 1.05 1.08 1.08 1.06 1.01 1.05 1.08 1.08 1.10  
Initial Bse: 0 2254 18 0 2130 12 84 193 56 90 183 42  
Added Vol: 0 342 0 0 212 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2596 18 0 2342 12 84 193 56 90 183 42  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2649 18 0 2390 12 86 197 57 92 186 43  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2649 18 0 2390 12 86 197 57 92 186 43  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2649 18 0 2390 12 86 197 57 92 186 43

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 1.00 0.89 0.89 0.58 0.95 0.95 0.54 0.95 0.95  
Lanes: 0.00 2.98 0.02 0.00 2.98 0.02 1.00 0.78 0.22 1.00 0.81 0.19  
Final Sat: 0 5043 35 0 5053 26 1097 1396 403 1035 1473 337

Capacity Analysis Module:  
Vol/Sat: 0.00 0.53 0.53 0.00 0.47 0.47 0.08 0.14 0.14 0.09 0.13 0.13  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.48 0.48 0.00 0.48 0.48 0.35 0.35 0.35 0.35 0.35 0.35  
Volume/Cap: 0.00 1.09 1.09 0.00 0.98 0.98 0.22 0.40 0.40 0.25 0.36 0.36  
Delay/Veh: 0.0 62.2 62.2 0.0 29.0 29.0 15.1 16.7 16.7 15.6 16.1 16.1  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 62.2 62.2 0.0 29.0 29.0 15.1 16.7 16.7 15.6 16.1 16.1  
LOS by Move: A E E A C C B B B B B B  
HCM2kavq: 0 33 33 0 24 24 1 4 4 1 3 3

Note: Queue reported is the number of cars per lane.

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1200 Sunset / Ocean

Cycle (sec): 60 Critical Vol./Cap.(X): 0.664  
Loss Time (sec): 9 Average Delay (sec/veh): 13.7  
Optimal Cycle: 59 Level Of Service: B

Street Name: Sunset Ocean  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 31 31 31 31 19 19 19 19  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 0 1 0 0 1 0 1 0 1

Volume Module:  
Base Vol: 0 1318 12 0 1735 81 54 83 18 47 23 192  
Growth Adj: 1.00 1.00 1.07 1.11 1.07 1.01 1.07 1.15 1.11 1.01 1.00 1.00  
Initial Bse: 0 1318 13 0 1853 82 58 95 20 48 23 192  
Added Vol: 0 468 0 0 247 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 1786 13 0 2100 82 58 95 20 48 23 192  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 1822 13 0 2143 84 59 97 20 49 23 196  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 1822 13 0 2143 84 59 97 20 49 23 196  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 1822 13 0 2143 84 59 97 20 49 23 196

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 1.00 0.89 0.89 0.87 0.87  
Lanes: 0.00 2.98 0.02 0.00 2.89 0.11 0.33 0.55  
Final Sat: 0 5042 36 0 4863 190 550 908 190 1354 1862 1583

Capacity Analysis Module:  
Vol/Sat: 0.00 0.36 0.36 0.00 0.44 0.44 0.11 0.11  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.53 0.53 0.00 0.53 0.53 0.32 0.32  
Volume/Cap: 0.00 0.68 0.68 0.00 0.83 0.83 0.34 0.34  
Delay/Veh: 0.0 11.6 11.6 0.0 14.7 14.7 17.4 17.4  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 11.6 11.6 0.0 14.7 14.7 17.4 17.4  
LOS by Move: A B B A B B B B B B B B  
HCMZkAvgQ: 0 8 8 0 15 3 3 1 0 3

Note: Queue reported is the number of cars per lane.

Level of Service Computation Report  
2000 HCM 4-Way Stop Method (Future Volume Alternative)  
Intersection #1210 Skyline / Sloat / 39th

Cycle (sec): 100 Critical Vol./Cap.(X): 0.692  
Loss Time (sec): 0 Average Delay (sec/veh): 17.5  
Optimal Cycle: 0 Level Of Service: C

Street Name: Skyline / 39th Sloat  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Stop Sign Stop Sign Stop Sign Stop Sign  
Rights: Ignore Include Ignore Include  
Min. Green: 0 0 0 0 0 0 0 0  
Y+R: 0 1 0 0 2 0 0 0 1 0 0 1 0 1 0 1  
Lanes: 0 1 0 0 2 0 0 0 1 0 0 1 0 1 0 1

Volume Module:  
Base Vol: 251 0 646 0 14 7 1 331 194 341 280 60  
Growth Adj: 1.19 1.41 1.35 1.15 1.00 1.00 1.35 1.29 1.15 1.00 1.00 1.19  
Initial Bse: 299 0 872 0 14 7 1 427 222 341 280 72  
Added Vol: 0 0 1 0 0 0 0 0 16 0 3 34 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 299 0 873 0 14 7 1 443 222 344 314 72  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 306 0 0 14 7 1 452 0 351 320 73  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 306 0 0 14 7 1 452 0 351 320 73  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 306 0 0 14 7 1 452 0 351 320 73

Saturation Flow Module:  
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Lanes: 1.00 0.00 2.00 0.00 0.67 0.33 0.01 1.99  
Final Sat: 442 0 1009 0 274 137 3 912 493 919 810 189

Capacity Analysis Module:  
Vol/Sat: 0.69 xxxxx 0.00 xxxxx 0.05 0.50 0.50 0.00 0.38 0.40 0.39  
Crit Moves: \*\*\*\*  
Delay/Veh: 25.8 0.0 0.0 0.0 11.4 11.4 17.3 17.3  
AdjDel/Veh: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 25.8 0.0 0.0 0.0 11.4 11.4 17.3 17.3  
LOS by Move: D \* \* B C C \* B B B  
ApproachDel: 25.8 11.4 17.3 17.3  
Delay Adj: 1.00 1.00 1.00 1.00  
ApprAdjDel: 25.8 11.4 17.3 17.3  
LOS by Appr: D B B C  
AllWayAvgQ: 1.9 1.9 0.0 0.0 0.0 0.0 0.9 0.9 0.0 0.6 0.6 0.6

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1221 Skyline / Lake Merced (WBR)

Average Delay (sec/veh): 1.4 Worst Case Level Of Service: C [15.1]

Street Name: Skyline North Bound South Bound East Bound West Bound

Approach: L - T - R L - T - R L - T - R L - T - R

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign

Rights: Include Include Include Include

Lanes: 0 0 2 0 0 1 0 2 0 0 0 0 0 0 0 0 0 0 0 1

Volume Module:

Base Vol: 0 814 0 90 456 0 0 0 0 0 0 0 0 0 0 0 0 0 0 75

Growth Adj: 1.23 1.42 1.30 1.09 1.00 1.02 1.30 1.18 1.09 1.02 1.04 1.23

Initial Bse: 0 1156 0 98 456 0 0 0 0 0 0 0 0 0 0 0 0 0 0 92

Added Vol: 0 1 0 0 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 1157 0 98 459 0 0 0 0 0 0 0 0 0 0 0 0 0 0 92

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 1180 0 100 468 0 0 0 0 0 0 0 0 0 0 0 0 0 0 94

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

FinalVolume: 0 1180 0 100 468 0 0 0 0 0 0 0 0 0 0 0 0 0 0 94

Critical Gap Module:

Critical Gp:xxxxx xxxx xxxxx 4.1 xxxx xxxxx xxxxx xxxxx xxxxx xxxxx 6.9

FollowUpTim:xxxxx xxxx xxxxx 2.2 xxxx xxxxx xxxxx xxxxx xxxxx xxxxx 3.3

Capacity Module:

Conflict Vol: xxxx xxxx xxxxx 1180 xxxx xxxxx xxxxx xxxxx xxxxx 590

Potent Cap.: xxxx xxxx xxxxx 587 xxxx xxxxx xxxxx xxxxx xxxxx 451

Move Cap.: xxxx xxxx xxxxx 587 xxxx xxxxx xxxxx xxxxx xxxxx 451

Volume/Cap: xxxx xxxx xxxxx 0.17 xxxx xxxxx xxxxx xxxxx xxxxx 0.21

Level Of Service Module:

2Way95thQ: xxxx xxxx xxxxx 0.6 xxxx xxxxx xxxxx xxxxx xxxxx 0.8

Control Del:xxxxx xxxx xxxxx 12.4 xxxx xxxxx xxxxx xxxxx xxxxx 15.1

LOS by Move: A B C

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx xxxx xxxxx xxxx xxxx xxxxx xxxx xxxx xxxxx

SharedQueue:xxxxx xxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx

Shrd Conbel:xxxxx xxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx

Shared LOS: \*

ApproachDel: xxxxxx xxxxxx 15.1 C

ApproachLOS: \*

Note: Queue reported is the number of cars per lane.

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

Level Of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1222 Skyline / Lake Merced (WBLT)

Average Delay (sec/veh): 1.5 Worst Case Level Of Service: F [52.8]

Street Name: Skyline North Bound South Bound East Bound West Bound

Approach: L - T - R L - T - R L - T - R L - T - R

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign

Rights: Include Include Include Include

Lanes: 1 0 1 1 0 0 0 2 0 1 0 0 0 0 1 0 1 0 0

Volume Module:

Base Vol: 5 814 90 0 423 33 0 0 0 0 0 0 0 0 43 5 0

Growth Adj: 1.23 1.42 1.30 1.09 1.00 1.02 1.30 1.18 1.09 1.02 1.04 1.23

Initial Bse: 6 1155 117 0 424 34 0 0 0 0 0 0 0 0 44 5 0

Added Vol: 0 1 0 0 3 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 6 1156 117 0 427 34 0 0 0 0 0 0 0 0 44 5 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 6 1179 119 0 436 34 0 0 0 0 0 0 0 0 45 5 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

FinalVolume: 6 1179 119 0 436 34 0 0 0 0 0 0 0 0 45 5 0

Critical Gap Module:

Critical Gp: 4.1 xxxx xxxxx xxxxx xxxxx xxxxx xxxxx 6.8 6.5 xxxxx

FollowUpTim: 2.2 xxxx xxxxx xxxxx xxxxx xxxxx xxxxx 3.5 4.0 xxxxx

Capacity Module:

Conflict Vol: 470 xxxx xxxxx xxxxx xxxxx xxxxx xxxxx 1470 1722 xxxxx

Potent Cap.: 1088 xxxx xxxxx xxxxx xxxxx xxxxx xxxxx 118 88 xxxxx

Move Cap.: 1088 xxxx xxxxx xxxxx xxxxx xxxxx xxxxx 118 88 xxxxx

Volume/Cap: 0.01 xxxx xxxxx xxxxx xxxxx xxxxx xxxxx 0.38 0.06 xxxxx

Level Of Service Module:

2Way95thQ: 0.0 xxxx xxxxx xxxxx xxxxx xxxxx xxxxx 1.6 0.2 xxxxx

Control Del: 8.3 xxxx xxxxx xxxxx xxxxx xxxxx xxxxx 53.3 48.6 xxxxx

LOS by Move: A \*

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx xxxx xxxxx xxxx xxxx xxxxx xxxx xxxx xxxxx

SharedQueue:xxxxx xxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx

Shrd Conbel:xxxxx xxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx

Shared LOS: \*

ApproachDel: xxxxxx xxxxxx 52.8 F

ApproachLOS: \*

Note: Queue reported is the number of cars per lane.

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES



Tier 4c AM Mon Jan 4, 2010 09:46:28 Page 28-1

19th Ave CS  
Tier 4c

Level of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1230 Sunset / Lake Merced

Average Delay (sec/veh): 3.7 Worst Case Level of Service: F(425.0)

Street Name: Sunset Lake Merced

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign

Rights: Ignore Ignore Ignore Ignore

Lanes: 1 0 2 0 0 0 2 0 1 1 0 0 0 1 0 0 1 0 0

Volume Module:

Base Vol: 87 1279 0 0 1822 29 28 0 146 0 0 0

Growth Adj: 1.01 1.00 1.02 1.07 1.09 1.06 1.02 1.06 1.07 1.06 1.04 1.01

Initial Bse: 88 1279 0 0 1981 31 29 0 157 0 0 0

Added Vol: 0 468 0 0 247 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 88 1747 0 0 2228 31 29 0 157 0 0 0

User Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 0.00

PHF Adj: 0.98 0.98 0.00 0.98 0.98 0.00 0.98 0.98 0.00 0.98 0.98 0.00

PHF Volume: 90 1783 0 0 2273 0 29 0 0 0 0 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

FinalVolume: 90 1783 0 0 2273 0 29 0 0 0 0 0

Critical Gap Module:

Critical Gap: 4.1 xxxxx xxxxx xxxxx 4.8 xxxxx 6.9 7.5 2.5 6.9

FollowUpTim: 2.2 xxxxx xxxxx xxxxx xxxxx 3.5 xxxxx 3.3 3.5 4.0 3.3

Capacity Module:

Conflict Vol: 2273 xxxxx xxxxx xxxxx 3344 xxxxx 1137 3099 4235 891

Potent Cap.: 221 xxxxx xxxxx xxxxx xxxxx 39 xxxxx 196 5 215 285

Move Cap.: 221 xxxxx xxxxx xxxxx xxxxx 26 xxxxx 196 3 128 285

Volume/Cap: 0.41 xxxxx xxxxx xxxxx xxxxx 1.10 xxxxx 0.00 0.00 0.00 0.00

Level of Service Module:

2Way95thQ: 1.8 xxxxx xxxxx xxxxx xxxxx 3.5 xxxxx xxxxx xxxxx xxxxx

Control Del: 32.0 xxxxx xxxxx xxxxx xxxxx 425.0 xxxxx xxxxx xxxxx xxxxx

LOS by Move: D \* \* \* \* \* F \* \* \* \* \*

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx 0 xxxxx

SharedQueue: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx

Shrd ConDel: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx

Shared LOS: \* \* \* \* \* \* \* \* \* \* \* \* \* \* \*

ApproachDel: xxxxxx xxxxxx 425.0 xxxxxx

ApproachLOS: \* \* \* \* \* F \* \* \* \* \*

Note: Queue reported is the number of cars per lane.

Tier 4c AM Mon Jan 4, 2010 09:46:28 Page 29-1

19th Ave CS  
Tier 4c

Level of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1240 Lake Merced / Winston

Cycle (sec): 90 Critical Vol./Cap.(X): 0.805

Loss Time (sec): 9 Average Delay (sec/veh): 99.9

Optimal Cycle: 89 Level Of Service: F

Street Name: Lake Merced Winston

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Protected Split Phase Split Phase

Rights: WideByPass Include Include Ignore

Min. Green: 34 34 34 17 55 55 0 0 0 25 25 25

Y+R: 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0

Lanes: 0 0 2 1 0 2 0 2 0 0 0 0 2 0 0 1

Volume Module:

Base Vol: 0 1384 215 218 1789 0 0 0 0 196 0 181

Growth Adj: 1.00 1.14 1.18 1.16 1.09 1.00 1.18 1.22 1.16 1.00 1.00 1.00

Initial Bse: 0 1573 254 252 1954 0 0 0 0 196 0 181

Added Vol: 0 393 266 116 131 0 0 0 0 139 0 74

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 1966 520 368 2085 0 0 0 0 335 0 255

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.00

PHF Volume: 0 2006 530 376 2127 0 0 0 0 342 0 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 2006 530 376 2127 0 0 0 0 342 0 0

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00

FinalVolume: 0 2006 530 376 2127 0 0 0 0 342 0 0

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 1.00 0.86 0.86 0.90 0.93 1.00 1.00 1.00 1.00 0.90 1.00 1.00

Lanes: 0.00 2.37 0.63 2.00 2.00 0.00 0.00 0.00 0.00 2.00 0.00 1.00

Final Sat.: 0 3896 1030 3432 3538 0 0 0 0 3432 0 1900

Capacity Analysis Module:

Vol/Sat: 0.00 0.51 0.51 0.11 0.60 0.00 0.00 0.00 0.00 0.10 0.00 0.00

Crit Moves: \*\*\*\*

Green/Cycle: 0.38 0.38 0.38 0.19 0.62 0.62 0.00 0.00 0.00 0.28 0.28 0.28

Volume/Cap: 0.00 1.34 1.34 0.56 0.97 0.00 0.00 0.00 0.00 0.36 0.00 0.00

Delay/Veh: 0.0 184 183.5 36.2 23.0 0.0 0.0 0.0 0.0 27.1 0.0 0.0

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 184 183.5 36.2 23.0 0.0 0.0 0.0 0.0 27.1 0.0 0.0

LOS by Move: A F F D C A A A A C A A

HCM2kAVGQ: 0 56 56 5 32 0 0 0 0 4 0 0

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4c

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1250 Lake Merced / Font  
Cycle (sec): 90 Critical Vol./Cap.(X): 1.400  
Loss Time (sec): 7 Average Delay (sec/veh): 160.6  
Optimal Cycle: 180 Level of Service: F  
\*\*\*\*\*

Street Name: Lake Merced Font  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Protected Split Phase Split Phase  
Rights: Ignore Include Include Include  
Min. Green: 43 43 43 15 61 61 0 0 0 22 0 22  
Y+R: 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0  
Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 0 1 0 0 0 1

Volume Module:  
Base Vol: 0 1746 48 147 1549 0 0 0 0 43 0 304  
Growth Adj: 1.09 1.14 1.07 1.05 1.09 1.07 1.07 1.01 1.05 1.07 1.04 1.09  
Initial Bse: 0 1985 51 154 1692 0 0 0 0 46 0 331  
Added Vol: 0 414 -9 124 178 0 0 0 0 -8 0 350  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2399 42 278 1870 0 0 0 0 38 0 681  
User Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.00 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2447 0 284 1908 0 0 0 0 39 0 695  
Reduced Vol: 0 2447 0 284 1908 0 0 0 0 39 0 695  
PCE Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2447 0 284 1908 0 0 0 0 39 0 695

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 1.00 0.93 0.93 1.00 1.00 1.00 1.00 0.93 1.00 0.83  
Lanes: 0.00 2.00 1.00 1.00 2.00 0.00 0.00 0.00 0.00 1.00 0.00 1.00  
Final Sat.: 0 3538 1900 1769 3538 0 0 0 0 1769 0 1583

Capacity Analysis Module:  
Vol/Sat: 0.00 0.69 0.00 0.16 0.54 0.00 0.00 0.00 0.00 0.02 0.00 0.44  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.48 0.48 0.48 0.17 0.68 0.68 0.00 0.00 0.00 0.24 0.24 0.24  
Volume/Cap: 0.00 1.45 0.00 0.96 0.80 0.00 0.00 0.00 0.00 0.09 0.00 1.80  
Delay/Veh: 0.0 224 0.0 81.0 6.3 0.0 0.0 0.0 0.0 26.7 0.0 402.2  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 224 0.0 81.0 6.3 0.0 0.0 0.0 0.0 26.7 0.0 402.2  
LOS by Move: A F A F A A A A A C A F  
HCM2KavgQ: 0 82 0 12 12 0 0 0 0 1 0 58  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4c

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1261 Lake Merced / Vidal  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.925  
Loss Time (sec): 12 Average Delay (sec/veh): 45.2  
Optimal Cycle: 122 Level of Service: D  
\*\*\*\*\*

Street Name: Lake Merced Vidal  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Protected Split Phase Split Phase  
Rights: Include Include Include Include  
Min. Green: 41 41 41 11 59 59 0 0 0 20 20 20  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 0 1 0 0 0 1

Volume Module:  
Base Vol: 0 1899 29 19 1592 0 0 0 0 7 0 11  
Growth Adj: 1.00 1.14 1.11 1.09 1.09 1.00 1.00 1.00 1.00 1.10 1.00 1.12  
Initial Bse: 0 2165 32 21 1735 0 0 0 0 8 0 12  
Added Vol: 0 342 43 65 104 0 0 0 0 64 0 63  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2507 75 86 1839 0 0 0 0 72 0 75  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2558 77 87 1877 0 0 0 0 73 0 77  
Reduced Vol: 0 2558 77 87 1877 0 0 0 0 73 0 77  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2558 77 87 1877 0 0 0 0 73 0 77

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.83 0.93 0.93 1.00 1.00 1.00 1.00 0.93 1.00 0.83  
Lanes: 0.00 2.00 1.00 1.00 2.00 0.00 0.00 0.00 0.00 1.00 0.00 1.00  
Final Sat.: 0 3538 1583 1769 3538 0 0 0 0 1769 0 1583

Capacity Analysis Module:  
Vol/Sat: 0.00 0.72 0.05 0.05 0.53 0.00 0.00 0.00 0.00 0.04 0.00 0.05  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.65 0.65 0.65 0.10 0.79 0.79 0.00 0.00 0.00 0.13 0.13 0.13  
Volume/Cap: 0.00 1.11 0.07 0.49 0.67 0.00 0.00 0.00 0.00 0.32 0.00 0.37  
Delay/Veh: 0.0 74.9 6.6 52.2 6.0 0.0 0.0 0.0 0.0 43.1 0.0 44.9  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 74.9 6.6 52.2 6.0 0.0 0.0 0.0 0.0 43.1 0.0 44.9  
LOS by Move: A E A D A A A A A D A D  
HCM2KavgQ: 0 56 1 2 14 0 0 0 0 2 0 3  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4c

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1262 Lake Merced / Acevedo  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.962  
Loss Time (sec): 12 Average Delay (sec/veh): 43.3  
Optimal Cycle: 149 Level Of Service: D

Street Name: Lake Merced  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Protected Split Phase  
Rights: Include Include  
Min. Green: 41 41 11 59 59 0 0 0 20 20 20  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 0 0 1 0 0

Volume Module:  
Base Vol: 0 1913 17 10 1588 0 0 0 0 7 0 15  
Growth Adj: 1.12 1.14 1.11 1.09 1.09 1.10 1.11 1.08 1.09 1.10 1.12 1.00  
Initial Bse: 0 2181 19 11 1731 0 0 0 0 8 0 15  
Added Vol: 0 299 25 35 133 0 0 0 0 63 0 87  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2480 44 46 1864 0 0 0 0 71 0 102  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2530 45 47 1902 0 0 0 0 72 0 104  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2530 45 47 1902 0 0 0 0 72 0 104

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.93 1.00 1.00 1.00 1.00 0.88 1.00 0.88  
Lanes: 0.00 2.00 1.00 1.00 2.00 0.00 0.00 0.00 0.41 0.00 0.59  
Final Sat.: 0 3538 1583 1769 3538 0 0 0 687 0 992

Capacity Analysis Module:  
Vol/Sat: 0.00 0.72 0.03 0.03 0.54 0.00 0.00 0.00 0.00 0.10 0.00 0.10  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.65 0.65 0.65 0.10 0.79 0.79 0.00 0.00 0.00 0.13 0.13  
Volume/Cap: 0.00 1.10 0.04 0.26 0.68 0.00 0.00 0.00 0.00 0.81 0.00 0.81  
Delay/Veh: 0.00 70.1 6.4 45.2 6.1 0.0 0.0 0.0 0.0 68.8 0.0 68.8  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 70.1 6.4 45.2 6.1 0.0 0.0 0.0 0.0 68.8 0.0 68.8  
LOS by Move: A E A A A A A A A E A E  
HCM2KAVGQ: 0 55 0 0 1 15 0 0 0 0 8 0 8

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4c

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1263 Lake Merced / Higuera  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.994  
Loss Time (sec): 12 Average Delay (sec/veh): 37.9  
Optimal Cycle: 180 Level Of Service: D

Street Name: Lake Merced  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Protected Split Phase  
Rights: Include Include  
Min. Green: 41 41 11 59 59 0 0 0 20 20 20  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 0 0 1 0 0

Volume Module:  
Base Vol: 0 1690 1 5 1590 0 0 0 0 25 0 24  
Growth Adj: 1.12 1.14 1.11 1.09 1.09 1.10 1.11 1.08 1.09 1.10 1.10 1.12  
Initial Bse: 0 1921 1 5 1736 0 0 0 0 27 0 27  
Added Vol: 0 184 2 17 179 0 0 0 0 233 0 140  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2105 3 22 1915 0 0 0 0 260 0 167  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2148 3 23 1954 0 0 0 0 266 0 170  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2148 3 23 1954 0 0 0 0 266 0 170

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.93 1.00 1.00 1.00 1.00 0.90 1.00 0.90  
Lanes: 0.00 2.00 1.00 1.00 2.00 0.00 0.00 0.61 0.00 0.39  
Final Sat.: 0 3538 1583 1769 3538 0 0 0 1042 0 668

Capacity Analysis Module:  
Vol/Sat: 0.00 0.61 0.00 0.01 0.55 0.00 0.00 0.00 0.25 0.00 0.25  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.63 0.63 0.63 0.10 0.75 0.75 0.00 0.00 0.17 0.17  
Volume/Cap: 0.00 0.96 0.00 0.13 0.74 0.00 0.00 0.00 1.50 0.00 1.50  
Delay/Veh: 0.0 20.9 3.4 42.5 1.9 0.0 0.0 0.0 283.4 0.0 283.4  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 20.9 3.4 42.5 1.9 0.0 0.0 0.0 283.4 0.0 283.4  
LOS by Move: A C A D A A A A A F A F  
HCM2KAVGQ: 0 29 0 1 3 0 0 0 33 0 33

Note: Queue reported is the number of cars per lane.



19th Ave CS  
Tier 4cLevel of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1264 Lake Merced / Gonzalez

Cycle (sec): 100 Critical Vol./Cap.(X): 0.923  
Loss Time (sec): 12 Average Delay (sec/veh): 33.6  
Optimal Cycle: 122 Level Of Service: CStreet Name: Lake Merced Gonzalez  
Approach: North Bound South Bound East Bound West Bound

Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Protected				Protected					Split Phase					Split Phase
Rights:	Include				Include					Include					Include
Min. Green:	41	41	41	11	59	59	0	0	0	20	20	20	20	20	20
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	2	0	1	1	0	2	0	0	0	0	0	1	0

Volume Module:

Base Vol:	0	1899	97	6	1609	0	0	0	0	39	0	9
Growth Adj:	1.12	1.14	1.11	1.09	1.09	1.10	1.11	1.08	1.09	1.10	1.10	1.12
Initial Bse:	0	2165	108	7	1754	0	0	0	0	43	0	10
Added Vol:	0	136	145	21	391	0	0	0	0	360	0	51
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	2301	253	28	2145	0	0	0	0	403	0	61
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	0	2348	258	28	2189	0	0	0	0	411	0	62
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	2348	258	28	2189	0	0	0	0	411	0	62
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	2348	258	28	2189	0	0	0	0	411	0	62

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.93	0.83	0.93	0.93	1.00	1.00	1.00	1.00	0.92	1.00	0.92
Lanes:	0.00	2.00	1.00	1.00	2.00	0.00	0.00	0.00	0.00	1.77	0.00	0.23
Final Sat.:	0	3538	1593	1769	3538	0	0	0	0	3090	0	407

Capacity Analysis Module:

Vol/Sat:	0.00	0.66	0.16	0.02	0.62	0.00	0.00	0.00	0.00	0.13	0.00	0.15
Crit Moves:	Green/Cycle:	0.63	0.63	0.10	0.75	0.75	0.00	0.00	0.00	0.17	0.17	0.17
Volume/Cap:	0.00	1.05	0.26	0.16	0.82	0.00	0.00	0.00	0.00	0.78	0.00	0.90
Delay/Veh:	0.0	53.5	8.8	43.1	11.3	0.0	0.0	0.0	0.0	49.5	0.0	61.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	53.5	8.8	43.1	11.3	0.0	0.0	0.0	0.0	49.5	0.0	61.9
LOS by Move:	A	D	A	D	B	A	A	A	A	D	A	E
HCM2kAvgQ:	0	44	3	1	25	0	0	0	0	9	0	12

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4cLevel of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1270 Lake Merced / Brotherhood

Cycle (sec): 110 Critical Vol./Cap.(X): 1.784  
Loss Time (sec): 15 Average Delay (sec/veh): 122.0  
Optimal Cycle: 180 Level Of Service: FStreet Name: Lake Merced Brotherhood  
Approach: North Bound South Bound East Bound West Bound

Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Permitted				Protected					Split Phase					Split Phase
Rights:	Include				Include					Include					Include
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	5.0	5.0	5.0	5.0	5.0	5.0	10.0	10.0	10.0	10.0	5.0	5.0	5.0	5.0	5.0
Lanes:	0	0	2	0	1	2	0	1	0	0	0	0	1	0	0

Volume Module:

Base Vol:	0	416	209	1478	225	0	0	0	0	139	0	1483
Growth Adj:	1.13	1.14	1.29	1.26	1.09	1.11	1.29	1.44	1.26	1.11	1.12	1.13
Initial Bse:	0	473	269	1868	246	0	0	0	0	154	0	1674
Added Vol:	0	117	-18	477	274	0	0	0	0	-16	0	164
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	590	251	2345	520	0	0	0	0	138	0	1838
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	0	602	256	2393	0	0	0	0	0	141	0	1875
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	602	256	2393	0	0	0	0	0	141	0	1875
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	602	256	2393	0	0	0	0	0	141	0	1875

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.93	0.83	0.90	1.00	1.00	1.00	1.00	1.00	0.93	1.00	0.73
Lanes:	0.00	2.00	1.00	2.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	2.00
Final Sat.:	0	3538	1583	3432	1900	0	0	0	0	1769	0	2786

Capacity Analysis Module:

Vol/Sat:	0.00	0.17	0.16	0.70	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.67
Crit Moves:	Green/Cycle:	0.16	0.16	0.43	0.48	0.69	0.00	0.00	0.00	0.22	0.22	0.75
Volume/Cap:	0.00	1.04	0.38	1.45	0.00	0.00	0.00	0.00	0.00	0.36	0.00	0.90
Delay/Veh:	0.0	94.2	18.9	227.4	0.0	0.0	0.0	0.0	0.0	37.1	0.0	16.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	94.2	18.9	227.4	0.0	0.0	0.0	0.0	0.0	37.1	0.0	16.9
LOS by Move:	A	F	B	F	A	A	A	A	A	D	A	B
HCM2kAvgQ:	0	17	5	86	0	0	0	0	0	4	0	32

Note: Queue reported is the number of cars per lane.

Tier 4C Conditions  
Weekday PM Peak Hour

Scenario: Tier 4c PM Scenario Report

Command: Default Command  
Volume: Tier 4c PM  
Geometry: Tier 4c PM  
Impact Fee: Default Impact Fee  
Trip Generation: Projects PM  
Trip Distribution: PM  
Paths: Tier 4c  
Routes: Tier 4  
Configuration: Tier 4

Impact Analysis Report  
Level Of Service

Intersection	Base Del/ LOS	V/ Veh C	Future Del/ V/ C	Change in
#1010 Claremont / Taraval / Dewey	A	7.1 0.653	A 7.4 0.672	+ 0.020 V/C
#1020 Santa Clara / Portola / Vicent	C	30.5 0.841	D 39.0 0.936	+ 8.525 D/V
#1030 Junipero Serra / Sloat / West	F	101.4 1.113	F 117.2 1.170	+15.817 D/V
#1040 Junipero Serra / Ocean / Eucal	D	39.7 0.820	E 70.2 1.063	+30.533 D/V
#1050 Junipero Serra / Winston / Mer	C	30.4 0.678	D 49.3 1.062	+18.865 D/V
#1060 Junipero Serra / Holloway	C	30.4 0.692	C 31.8 0.718	+ 1.408 D/V
#1070 Junipero Serra / 19th	C	33.0 0.822	F 90.6 0.872	+57.575 D/V
#1075 Junipero Serra / Chumaseo	A	10.0 0.935	C 31.3 1.067	+21.260 D/V
#1080 Junipero Serra / I-280 NB On-R	F	129.3 1.294	F 152.0 1.400	+22.707 D/V
#1090 Junipero Serra / I-280 SB On-R	D	49.9 1.054	F 89.9 1.172	+40.016 D/V
#1100 19th / Taraval	B	19.4 0.839	C 24.0 0.883	+ 4.578 D/V
#1110 19th / Sloat	F	127.7 1.550	F 154.7 1.630	+26.999 D/V
#1120 19th / Ocean	F	146.9 1.568	F 180.5 1.633	+33.636 D/V
#1130 19th / Eucalyptus	E	69.7 1.079	F 86.4 1.180	+16.707 D/V
#1140 19th / Winston	F	97.7 1.325	F 207.7 1.699	+109.967 D/
#1150 19th / Buckingham	F	408.9 1.759	F 604.0 2.196	+195.131 D/
#1160 19th / Holloway	A	8.1 0.801	F 85.1 0.884	+77.052 D/V
#1170 19th / Crespi	B	18.4 0.692	F 87.1 0.764	+68.683 D/V
#1181 Chumaseo / Brotherhood	B	15.8 0.720	F 84.0 0.932	+68.121 D/V
#1182 Thomas More / brotherhood	B	14.3 0.462	C 22.3 0.572	+ 7.999 D/V
#1190 Sunset / Taraval	D	49.8 0.843	F 125.6 0.960	+75.784 D/V
#1200 Sunset / Ocean	B	13.3 0.687	C 30.5 0.827	+17.163 D/V
#1210 Skyline / Sloat / 39th	D	27.0 0.908	D 29.4 0.925	+ 0.017 V/C
#1221 Skyline / Lake Merced (WBR)	C	17.4 0.416	C 17.5 0.417	+ 0.048 D/V



Intersection	Base		Future		Change
	Del/	V/	Del/	V/	
	LOS	C	LOS	C	in
#1222 Skyline / Lake Merced (WBLT)	F 116.8	0.894	F 118.6	0.900	+ 1.760 D/V
#1230 Sunset / Lake Merced	F OVRFL	1.328	F OVRFL	2.491	Nan D/V
#1240 Lake Merced / Winston	E 55.7	0.971	F 188.9	1.372	+133.281 D/
#1250 Lake Merced / Font	D 46.8	0.783	F 179.3	1.546	+132.523 D/
#1261 Lake Merced / Vidal	C 32.9	0.687	D 36.0	0.887	+ 3.143 D/V
#1262 Lake Merced / Acevedo	C 32.4	0.705	C 34.6	0.959	+ 2.213 D/V
#1263 Lake Merced / Higuera	E 77.3	0.741	D 45.4	1.135	-31.909 D/
#1264 Lake Merced / Gonzalez	C 33.9	0.715	D 52.4	1.032	+18.414 D/V
#1270 Lake Merced / Brotherhood	E 68.7	1.689	F 186.0	2.199	+117.295 D/

Level Of Service Computation Report											
FHWA Roundabout Method (Future Volume Alternative)											
Intersection #1010 Claremont / Taraval / Dewey / Kensington											
Average Delay (sec/veh): 7.4 Level Of Service: A											
Street Name: Claremont South Bound East Bound Taraval / Dewey											
Approach: North Bound											
Movement: L - T - R L - T - R L - T - R L - T - R											
Control: Yield Sign Yield Sign Yield Sign Yield Sign Yield Sign Yield Sign											
Lanes: 1 1 1 1 1 1											
Volume Module:											
Base Vol:	17	24	239	50	63	5	10	259	55	324	338
Growth Adj:	1.09	1.10	1.07	1.06	1.09	1.08	1.07	1.04	1.06	1.08	1.09
Initial Bse:	18	26	255	53	69	5	11	269	59	351	364
Added Vol:	1	0	16	0	0	0	0	0	0	22	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	19	26	271	53	69	5	11	269	59	373	364
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	20	27	277	54	70	6	11	275	60	381	371
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	20	27	277	54	70	6	11	275	60	381	371
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	20	27	277	54	70	6	11	275	60	381	371
PCE Module:											
AutoPCE:	20	27	277	54	70	6	11	275	60	381	371
TruckPCE:	0	0	0	0	0	0	0	0	0	0	0
ComboPCE:	0	0	0	0	0	0	0	0	0	0	0
BicyclePCE:	0	0	0	0	0	0	0	0	0	0	0
AdjVolume:	20	27	277	54	70	6	11	275	60	381	371
Delay Module: >> Time Period: 0.25 hours <<											
CircVolume:	340			771				505		58	
MaxVolume:	1016			783				927		1169	
PedVolume:	0			0				0		0	
AdjMaxVol:	1016			783				927		1169	
ApproachVol:	324			130				345		786	
ApproachV/C:	0.32			0.17				0.37		0.67	
ApproachDel:	5.2			5.5				6.2		9.2	
ApproachLOS:	A			A				A		A	
Queue:	1.4			0.6				1.7		5.5	

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1020 Santa Clara / Portola / Vicente  
Cycle (sec): 80 Critical Vol./Cap.(X): 0.936  
Loss Time (sec): 11 Average Delay (sec/veh): 39.0  
Optimal Cycle: 111 Level of Service: D  
\*\*\*\*\*

Street Name: Santa Clara / Vicente Portola  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Include Protected Protected  
Rights: Include Include  
Min. Green: 23 23 23 9 36 36 9 36 36  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 1 0 0 0 1 0 1 0 1 0 1 0 1 0

Volume Module:  
Base Vol: 22 273 85 191 48 48 1051 33 147 987 108  
Growth Adj: 1.03 1.00 1.03 1.07 1.03 1.07 1.03 1.07 1.07 1.10 1.03  
Initial Bse: 23 273 88 92 198 51 50 1155 35 157 1087 112  
Added Vol: 0 0 0 15 0 4 0 147 0 0 246 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 23 273 88 107 198 55 50 1302 35 157 1333 112  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 23 279 90 109 202 56 51 1329 36 160 1360 114  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 23 279 90 109 202 56 51 1329 36 160 1360 114  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 23 279 90 109 202 56 51 1329 36 160 1360 114

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.92 0.92 0.92 0.59 0.59 0.59 0.93 0.93 0.92 0.92  
Lanes: 0.06 0.71 0.23 0.30 0.55 0.15 1.00 1.95 0.05 1.00 1.85 0.15  
Final Sat.: 104 1246 401 331 612 171 1769 3431 93 1769 3225 270

Capacity Analysis Module:  
Vol/Sat: 0.22 0.22 0.22 0.33 0.33 0.33 0.03 0.39 0.39 0.09 0.42 0.42  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.30 0.30 0.30 0.30 0.30 0.11 0.45 0.45 0.11 0.45 0.45  
Volume/Cap: 0.75 0.75 0.75 1.10 1.10 1.10 0.25 0.86 0.86 0.80 0.94 0.94  
Delay/Veh: 34.5 34.5 34.5 106.1 106 106.1 35.5 26.1 26.1 62.9 32.9 32.9  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 34.5 34.5 34.5 106.1 106 106.1 35.5 26.1 26.1 62.9 32.9 32.9  
LOS by Move: C C C F F F D C C E C C  
HCM2KavgQ: 10 10 10 17 17 17 19 19 19 6 24 24  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1030 Junipero Serra / sloat / West Portal / St. Francis  
Cycle (sec): 105 Critical Vol./Cap.(X): 1.170  
Loss Time (sec): 16 Average Delay (sec/veh): 117.2  
Optimal Cycle: 180 Level of Service: F  
\*\*\*\*\*

Street Name: Junipero Serra / West Portal sloat / St. Francis  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Protected Permitted Include Ignore  
Rights: Include Include  
Min. Green: 16 53 53 32 32 32 15 15 15 20 20 20  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 3 0 1 1 0 0 0 2 1 0 3 0 1 0 1 0 1 0

Volume Module:  
Base Vol: 1027 1005 60 0 1045 261 852 420 471 20 405 10  
Growth Adj: 1.13 1.12 1.10 1.13 1.18 1.16 1.10 1.08 1.13 1.16 1.15 1.13  
Initial Bse: 1162 1121 66 0 1232 303 937 455 533 23 464 11  
Added Vol: 33 120 0 0 209 0 2 0 29 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 1195 1241 66 0 1441 303 939 455 562 23 464 11  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 1219 1266 67 0 1470 310 958 464 0 24 474 12  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 1219 1266 67 0 1470 310 958 464 0 24 474 12  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 1219 1266 67 0 1470 310 958 464 0 24 474 12

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.89 0.92 0.92 1.00 0.88 0.88 0.89 0.97 1.00 0.93 0.93 0.93  
Lanes: 3.00 1.90 0.10 0.00 2.48 0.52 3.00 1.00 1.00 0.09 1.86 0.05  
Final Sat.: 5096 3302 176 0 4130 870 5096 1843 1900 164 3276 80

Capacity Analysis Module:  
Vol/Sat: 0.24 0.38 0.38 0.00 0.36 0.36 0.19 0.25 0.00 0.14 0.14 0.14  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.17 0.48 0.48 0.00 0.30 0.30 0.18 0.18 0.00 0.19 0.19 0.19  
Volume/Cap: 1.39 0.80 0.80 0.00 1.17 1.17 1.04 1.39 0.00 0.76 0.76 0.76  
Delay/Veh: 227.4 23.0 23.0 0.0 119 118.7 83.6 238 0.0 48.1 48.1 48.1  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 227.4 23.0 23.0 0.0 119 118.7 83.6 238 0.0 48.1 48.1 48.1  
LOS by Move: F C C A F F F A D D D  
HCM2KavgQ: 28 17 17 0 36 36 17 33 0 10 10 10  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

Tier 4c PM	Mon Jan 4, 2010 09:48:58	Page 6-1
19th Ave CS		
Tier 4c		
Level Of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1040 Junipero Serra / Ocean / Eucalyptus		
Cycle (sec):	100	Critical Vol./Cap.(X): 1.063
Loss Time (sec):	14	Average Delay (sec/veh): 70.2
Optimal Cycle:	180	Level Of Service: E
Street Name: Junipero Serra Ocean / Eucalyptus		
Approach:	North Bound South Bound West Bound	
Movement:	L - T - R L - T - R L - T - R	
Control:	Protected Protected Protected	Permitted Permitted Permitted
Rights:	Include Include Ovl	
Min. Green:	11 43 43 16 48 48 27 27 27 27 27 27	
Y+R:	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	
Lanes:	1 0 2 1 0 2 0 2 1 0 0 1 0 1 0 0 1	
Volume Module:		
Base Vol:	176 1567 35 356 1065 96 140 356 58 77 332 333	
Growth Adj:	1.13 1.12 1.10 1.13 1.18 1.16 1.10 1.08 1.13 1.16 1.15 1.13	
Initial Bse:	199 1748 38 403 1255 112 154 386 66 90 381 377	
Added Vol:	0 107 43 35 194 9 12 91 0 25 66 34	
PasserbyVol:	0 0 0 0 0 0 0 0 0 0 0 0	
Initial Fut:	199 1855 81 438 1449 121 166 477 66 115 447 411	
User Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
PHF Adj:	0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98	
PHF Volume:	203 1893 83 446 1479 123 169 486 67 117 456 419	
Reduced Vol:	0 0 0 0 0 0 0 0 0 0 0 0	
Reduced Vol:	203 1893 83 446 1479 123 169 486 67 117 456 419	
PCE Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
MLF Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
FinalVolume:	203 1893 83 446 1479 123 169 486 67 117 456 419	
Saturation Flow Module:		
Sat/Vlane:	1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900	
Adjustment:	0.92 0.97 0.88 0.90 0.88 0.88 0.63 0.63 0.83 0.63 0.63 0.83	
Lanes:	1.00 2.86 0.14 2.00 2.77 0.23 0.52 1.48 1.00 0.20 0.80 1.00	
Final Sat:	1751 5249 231 3432 4636 386 616 1770 1583 244 951 1583	
Capacity Analysis Module:		
Vol/Sat:	0.12 0.36 0.36 0.13 0.32 0.32 0.27 0.27 0.04 0.48 0.48 0.26	
Crit Moves:	****	
Green/Cycle:	0.11 0.43 0.43 0.16 0.48 0.48 0.27 0.27 0.38 0.27 0.27 0.43	
Volume/Cap:	1.05 0.84 0.84 0.81 0.66 0.66 1.02 1.02 0.11 1.77 1.77 0.82	
Delay/Veh:	124.5 25.6 25.6 53.0 17.3 17.3 76.5 76.5 20.4 397.3 397 26.2	
User DelAdj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
AdjDel/Veh:	124.5 25.6 25.6 53.0 17.3 17.3 76.5 76.5 20.4 397.3 397 26.2	
LOS by Move:	F C C D B B B E C F F C	
HCM2AvgQ:	8 18 17 6 10 10 17 17 1 49 49 11	
Note: Queue reported is the number of cars per lane.		
Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES		

Tier 4c PM	Mon Jan 4, 2010 09:48:58	Page 7-1
19th Ave CS		
Tier 4c		
Level Of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1050 Junipero Serra / Winston / Mercedes		
Cycle (sec):	100	Critical Vol./Cap.(X): 1.062
Loss Time (sec):	14	Average Delay (sec/veh): 49.3
Optimal Cycle:	180	Level Of Service: D
Street Name: Junipero Serra Winston / Mercedes		
Approach:	North Bound South Bound East Bound West Bound	
Movement:	L - T - R L - T - R L - T - R L - T - R	
Control:	Protected Protected Protected	Permitted Permitted Permitted
Rights:	WideBypass Include Include	
Min. Green:	19 40 40 19 40 40 27 27 27 27 27 27	
Y+R:	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	
Lanes:	1 0 2 1 0 1 0 2 1 0 1 0 1 0 1 0 1	
Volume Module:		
Base Vol:	224 1516 52 85 1130 117 169 152 81 74 103 36	
Growth Adj:	1.05 1.12 1.11 1.15 1.18 1.08 1.11 1.11 1.15 1.08 1.00 1.05	
Initial Bse:	236 1691 58 97 1332 127 188 169 93 80 103 38	
Added Vol:	73 15 2 1 62 156 135 157 48 1 133 0	
PasserbyVol:	0 0 0 0 0 0 0 0 0 0 0 0	
Initial Fut:	309 1706 60 98 1394 283 323 326 141 81 236 38	
User Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
PHF Adj:	0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98	
PHF Volume:	315 1741 61 100 1422 289 330 333 144 83 241 39	
Reduced Vol:	0 0 0 0 0 0 0 0 0 0 0 0	
Reduced Vol:	315 1741 61 100 1422 289 330 333 144 83 241 39	
PCE Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
MLF Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
FinalVolume:	315 1741 61 100 1422 289 330 333 144 83 241 39	
Saturation Flow Module:		
Sat/Vlane:	1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900	
Adjustment:	0.93 0.89 0.89 0.93 0.87 0.87 0.44 0.98 0.83 0.30 0.98 0.83	
Lanes:	1.00 2.90 0.10 1.00 2.49 0.51 1.00 1.00 1.00 1.00 1.00 1.00	
Final Sat:	1769 4886 172 1769 4120 836 845 1862 1583 579 1862 1583	
Capacity Analysis Module:		
Vol/Sat:	0.18 0.36 0.36 0.06 0.35 0.35 0.39 0.18 0.09 0.14 0.13 0.02	
Crit Moves:	****	
Green/Cycle:	0.19 0.40 0.40 0.19 0.40 0.40 0.27 0.27 0.27 0.27 0.27 0.27	
Volume/Cap:	0.94 0.89 0.89 0.30 0.86 0.86 1.45 0.66 0.34 0.53 0.48 0.09	
Delay/Veh:	75.4 31.4 31.4 37.0 29.9 29.9 259.9 39.2 31.4 43.4 33.8 27.7	
User DelAdj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
AdjDel/Veh:	75.4 31.4 31.4 37.0 29.9 29.9 259.9 39.2 31.4 43.4 33.8 27.7	
LOS by Move:	E C C D C C F D C D C	
HCM2AvgQ:	10 18 18 2 18 18 22 8 3 3 7 1	
Note: Queue reported is the number of cars per lane.		
Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES		





Tier 4c PM	Mon Jan 4, 2010 09:48:58	19th Ave CS	Tier 4c	Page 11-1
Level Of Service Computation Report				
2000 HCM Operations Method (Future Volume Alternative)				
Intersection #1080 Junipero Serra / I-280 NB On-Ramp / John Daly				
Cycle (sec):	125	Critical Vol./Cap.(X):	1.400	
Loss Time (sec):	12	Average Delay (sec/veh):	152.0	
Optimal Cycle:	180	Level Of Service:	F	
Street Name: Junipero Serra / I-280 NB On-Ramp				
Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Split Phase	Split Phase	Split Phase	Split Phase
Rights:	Ovl	Ovl	Include	Ovl
Min. Green:	6 6 6	6 6 6	31 31 31	6 6 6
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	2 0 1 1 1	1 0 0 1 1	2 1 0 1 1	1 1 2 0 1
Volume Module:				
Base Vol:	621 381	328 210 383	857 495 160	122 895 232
Growth Adj:	1.19 1.13	1.11 1.28 1.47	1.36 1.11 1.09	1.28 1.36 1.25 1.19
Initial Bse:	739 429	363 268 562	1167 738 537	204 166 1122 276
Added Vol:	283 26	0 0 0	-1 18 187	0 0 16
PasserByVol:	0 0	0 0 0	0 0 0	0 0 0
Initial Fut:	1022 455	363 268 562	1167 737 555	391 166 1122 292
User Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	1043 464	370 274 574	1190 752 567	399 169 1145 298
Reduc Vol:	0 0	0 0 0	0 0 0	0 0 0
Reduced Vol:	1043 464	370 274 574	1190 752 567	399 169 1145 298
PCE Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Final Volume:	1043 464	370 274 574	1190 752 567	399 169 1145 298
Saturation Flow Module:				
Sat/Lane:	1900 1900	1900 1900	1900 1900	1900 1900
Adjustment:	0.90 0.87	0.87 0.93 0.88	0.88 0.85 0.88	0.88 0.89 0.89
Lanes:	2.00 1.67	1.33 1.00 0.65	1.35 2.22 1.63	1.15 1.00 3.00
Final Sat:	3432 2755	2196 1769 1089	2259 3608 2720	1916 1684 5053 1593
Capacity Analysis Module:				
Vol/Sat:	0.30 0.17	0.17 0.15 0.53	0.21 0.21 0.21	0.21 0.10 0.23 0.19
Crit Moves:	****	****	****	****
Green/Cycle:	0.19 0.19	0.33 0.33 0.33	0.25 0.25 0.25	0.14 0.14 0.14
Volume/Cap:	1.61 0.89	0.51 0.47 1.61	0.92 0.84 0.84	0.84 0.72 1.61
Delay/Veh:	333.3 60.5	34.1 34.1 322	31.3 47.9 47.9	47.9 52.7 335
User DelAdj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	333.3 60.5	34.1 34.1 322	31.3 47.9 47.9	47.9 52.7 335
LOS by Move:	F E C	C C F	D D D	D F C
HCM2KavgQ:	47 14	9 8 75	34 12 12	8 37 7
Note: Queue reported is the number of cars per lane.				
Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES				

Tier 4c PM	Mon Jan 4, 2010 09:48:58	19th Ave CS	Tier 4c	Page 10-1
Level Of Service Computation Report				
2000 HCM Operations Method (Future Volume Alternative)				
Intersection #1075 Junipero Serra / Chumaseo				
Cycle (sec):	100	Critical Vol./Cap.(X):	1.067	
Loss Time (sec):	10	Average Delay (sec/veh):	31.3	
Optimal Cycle:	180	Level Of Service:	C	
Street Name: Junipero Serra				
Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Protected	Protected	Split Phase	Split Phase
Rights:	Include	Include	Ovl	Include
Min. Green:	0 0 0	0 0 0	0 0 0	0 0 0
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	1 0 4 0 0	0 0 3 1 0	0 0 0 0 1	0 0 0 0 0
Volume Module:				
Base Vol:	60 4095	0 0 4238	31 0 0	125 0 0
Growth Adj:	1.09 1.12	1.06 1.09 1.18	1.12 1.00 1.00	1.05 1.00 1.00
Initial Bse:	65 4567	0 0 4994	35 0 0	131 0 0
Added Vol:	167 293	0 0 234	5 0 0	131 0 0
PasserByVol:	0 0	0 0 0	0 0 0	0 0 0
Initial Fut:	232 4860	0 0 5228	40 0 0	262 0 0
User Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	237 4959	0 0 5335	41 0 0	268 0 0
Reduc Vol:	0 0	0 0 0	0 0 0	0 0 0
Reduced Vol:	237 4959	0 0 5335	41 0 0	268 0 0
PCE Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Final Volume:	237 4959	0 0 5335	41 0 0	268 0 0
Saturation Flow Module:				
Sat/Lane:	1900 1900	1900 1900	1900 1900	1900 1900
Adjustment:	0.93 0.89	1.00 0.89 0.89	1.00 1.00 1.00	0.85 1.00 1.00
Lanes:	1.00 4.00	0.00 3.97 0.03	0.00 0.00 1.00	0.00 0.00 0.00
Final Sat:	1769 6778	0 0 6720	51 0 0	1611 0 0
Capacity Analysis Module:				
Vol/Sat:	0.13 0.73	0.00 0.79 0.79	0.00 0.00 0.17	0.00 0.00 0.00
Crit Moves:	****	****	****	****
Green/Cycle:	0.13 0.87	0.00 0.74 0.74	0.00 0.00 0.16	0.00 0.00 0.00
Volume/Cap:	1.07 0.84	0.00 1.07 1.07	0.00 0.00 1.07	0.00 0.00 0.00
Delay/Veh:	122.9 4.3	0.0 0.47 7.7	0.0 0.0 117.8	0.0 0.0 0.0
User DelAdj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	122.9 4.3	0.0 0.47 7.7	0.0 0.0 117.8	0.0 0.0 0.0
LOS by Move:	F A A	A D A	A F A	A A A
HCM2KavgQ:	13 23	0 0 57	57 0 0	0 0 0
Note: Queue reported is the number of cars per lane.				
Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES				

19th Ave CS  
Tier 4c

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1090 Junipero Serra / I-280 SB On-Ramp / John Daly  
\*\*\*\*\*  
Cycle (sec): 120 Critical Vol./Cap.(X): 1.172  
Loss Time (sec): 8 Average Delay (sec/veh): 89.9  
Optimal Cycle: 180 Level Of Service: F  
\*\*\*\*\*

Street Name: Junipero Serra / I-280 SB On-Ramp John Daly  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Split Phase Split Phase Split Phase Split Phase  
Rights: Ovl Include Include Include  
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 0 2 0 0 0 0 0 0 2 0 2 0 0 0

Volume Module:  
Base Vol: 0 0 350 0 0 0 972 427 722 1966 0  
Growth Adj: 1.05 1.00 1.04 1.32 1.55 1.33 1.04 1.09 1.32 1.33 1.10 1.05  
Initial Bse: 0 0 365 0 0 0 1058 563 958 2172 0  
Added Vol: 0 0 34 0 0 0 171 36 0 283 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 0 399 0 0 0 1229 599 958 2455 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 0 408 0 0 0 1254 611 977 2505 0  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 0 408 0 0 0 1254 611 977 2505 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 0 408 0 0 0 1254 611 977 2505 0

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 1.00 0.73 1.00 1.00 1.00 1.00 0.95 0.85 0.90 0.93 1.00  
Lanes: 0.00 0.00 2.00 0.00 0.00 0.00 0.00 2.02 0.98 2.00 2.00 0.00  
Final Sat.: 0 0 2786 0 0 0 3250 1584 3432 3538 0

Capacity Analysis Module:  
Vol/Sat: 0.00 0.00 0.15 0.00 0.00 0.00 0.00 0.39 0.39 0.28 0.71 0.00  
Crit Moves: 0.00 0.00 0.60 0.00 0.00 0.00 0.00 0.33 0.33 0.60 0.60 0.00  
Green/Cycle: 0.00 0.00 0.24 0.00 0.00 0.00 0.00 1.17 1.17 0.47 1.17 0.00  
Volume/Cap: 0.0 0.0 11.1 0.0 0.0 0.0 0.0 125 124.8 13.3 107 0.0  
Delay/Veh: 0.0 0.0 11.1 0.0 0.0 0.0 0.0 125 124.8 13.3 107 0.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 0.0 11.1 0.0 0.0 0.0 0.0 125 124.8 13.3 107 0.0  
LOS by Move: A A B A A A A F F B F A  
HCM2KavgQ: 0 0 4 0 0 0 0 40 40 9 69 0  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4c

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1100 19th / Taraval  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.883  
Loss Time (sec): 10 Average Delay (sec/veh): 24.0  
Optimal Cycle: 99 Level Of Service: C  
\*\*\*\*\*

Street Name: 19th Taraval  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Split Phase Split Phase Split Phase Split Phase  
Rights: Include Include Include Include  
Min. Green: 66 66 66 66 66 66 66 66 66 66 66 66  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 0 2 1 0 0 1 0 1 0 1 0

Volume Module:  
Base Vol: 0 2131 104 0 2591 31 3 331 84 22 336 51  
Growth Adj: 1.06 1.12 1.06 1.09 1.18 1.09 1.06 1.00 1.09 1.09 1.00 1.06  
Initial Bse: 0 2377 110 0 3053 34 3 331 91 24 336 54  
Added Vol: 0 201 2 0 202 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2578 112 0 3255 34 3 331 91 24 336 54  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2630 114 0 3322 34 3 338 93 24 343 55  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2630 114 0 3322 34 3 338 93 24 343 55  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2630 114 0 3322 34 3 338 93 24 343 55

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 1.00 0.89 0.89 0.86 0.86 0.86 0.83 0.83  
Lanes: 0.00 2.88 0.12 0.00 2.97 0.03 0.01 1.56 0.43 0.12 1.62 0.26  
Final Sat.: 0 4842 210 0 5026 52 24 2538 701 182 2562 411

Capacity Analysis Module:  
Vol/Sat: 0.00 0.54 0.54 0.00 0.66 0.66 0.13 0.13 0.13 0.13 0.13  
Crit Moves: 0.00 0.67 0.67 0.00 0.67 0.67 0.23 0.23 0.23 0.23 0.23  
Green/Cycle: 0.00 0.81 0.81 0.00 0.99 0.99 0.58 0.58 0.58 0.58 0.58  
Volume/Cap: 0.0 14.1 14.1 0.0 28.6 28.6 37.4 37.4 37.4 37.6 37.6  
Delay/Veh: 0.0 14.1 14.1 0.0 28.6 28.6 37.4 37.4 37.4 37.6 37.6  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 14.1 14.1 0.0 28.6 28.6 37.4 37.4 37.4 37.6 37.6  
LOS by Move: A B B A C C D D D D D  
HCM2KavgQ: 0 24 24 0 45 45 7 7 7 7 7  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.



Tier 4c PM	Mon Jan 4, 2010 09:48:59	Page 14-1
19th Ave CS		
Tier 4c		
Level of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1110 19th / Sloat		
Cycle (sec):	100	Critical Vol./Cap.(X): 1.630
Loss Time (sec):	9	Average Delay (sec/veh): 154.7
Optimal Cycle:	180	Level of Service: F
Street Name: 19th		
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Permitted	Protected
Rights:	Include	Include
Min. Green:	0 43 43	11 58 58
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 2 1 0	1 0 2 1 0
Volume Module:		
Base Vol:	0 2446 66	235 2609 321
Growth Adj:	1.13 1.12 1.10	1.16 1.10 1.08
Initial Bse:	0 2728 73	266 3075 373
Added Vol:	0 164 2	16 170 18
PasserByVol:	0 0 0	0 0 0
Initial Fut:	0 2892 75	282 3245 391
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	0 2951 76	287 3311 399
Reduc Vol:	0 0 0	0 0 0
Reduced Vol:	0 2951 76	287 3311 399
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00
FinalVolume:	0 2951 76	287 3311 399
Saturation Flow Module:		
Sat/Lane:	1900 1900 1900	1900 1900 1900
Adjustment:	0.00 0.89 0.89	0.93 0.88 0.88
Lanes:	0.00 2.92 0.08	1.00 2.68 0.32
Final Sat.:	0 4936 127	1769 4464 538
Capacity Analysis Module:		
Vol/Sat:	0.00 0.60 0.60	0.16 0.74 0.74
Crit Moves:	0.00 0.43 0.43	0.11 0.54 0.54
Green/Cycle:	0.00 1.39 1.39	1.44 1.37 1.37
Volume/Cap:	0.00 203 203	1.26 9 1.26
Delay/Veh:	0.00 203 203	1.26 9 1.26
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	0.00 203 203	1.26 9 1.26
LOS by Move:	A F F	F F F
HCMAvgQ:	0 70 70	22 87 87
Note: Queue reported is the number of cars per lane.		

Tier 4c PM	Mon Jan 4, 2010 09:48:59	Page 15-1
19th Ave CS		
Tier 4c		
Level of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1120 19th / Ocean		
Cycle (sec):	100	Critical Vol./Cap.(X): 1.633
Loss Time (sec):	9	Average Delay (sec/veh): 180.5
Optimal Cycle:	180	Level of Service: F
Street Name: 19th		
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Permitted	Permitted
Rights:	Include	Include
Min. Green:	64 64 64	64 64 64
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 2 1 0	0 0 2 1 0
Volume Module:		
Base Vol:	0 2340 47	0 2579 164
Growth Adj:	1.13 1.12 1.10	1.13 1.18 1.16
Initial Bse:	0 2610 52	0 3039 191
Added Vol:	0 166 0	0 170 0
PasserByVol:	0 0 0	0 0 0
Initial Fut:	0 2776 52	0 3209 191
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	0 2832 53	0 3275 195
Reduc Vol:	0 0 0	0 0 0
Reduced Vol:	0 2832 53	0 3275 195
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00
FinalVolume:	0 2832 53	0 3275 195
Saturation Flow Module:		
Sat/Lane:	1900 1900 1900	1900 1900 1900
Adjustment:	1.00 0.44 0.89	1.00 0.88 0.88
Lanes:	0.00 2.97 0.03	0.00 2.83 0.17
Final Sat.:	0 2511 47	0 4760 283
Capacity Analysis Module:		
Vol/Sat:	0.00 1.13 1.13	0.00 0.69 0.69
Crit Moves:	0.00 0.64 0.64	0.64 0.64 0.64
Green/Cycle:	0.00 1.76 1.76	0.00 1.08 1.08
Volume/Cap:	0.00 354 354	0.00 48.9 48.9
Delay/Veh:	0.00 354 354	0.00 48.9 48.9
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	0.00 354 354	0.00 48.9 48.9
LOS by Move:	A F F	A D D
HCMAvgQ:	0 86 172	0 48 48
Note: Queue reported is the number of cars per lane.		

19th Ave CS  
Tier 4c

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1130 19th / Eucalyptus  
Cycle (sec): 100 Critical Vol./Cap.(X): 1.180  
Loss Time (sec): 9 Average Delay (sec/veh): 86.4  
Optimal Cycle: 180 Level of Service: F  
\*\*\*\*\*

Street Name: 19th Eucalyptus  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Include Permitted Include Permitted Include  
Rights: 66 66 66 66 66 25 25 25 25 25 25  
Min. Green: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Y+R: 0 0 2 1 0 0 0 2 1 0 1 1 0 1 0 0 1 0 0  
Lanes: 0 0 2 1 0 0 0 2 1 0 1 1 0 1 0 0 1 0 0

Volume Module:  
Base Vol: 0 2277 26 0 2555 114 170 169 54 9 167 17  
Growth Adj: 1.13 1.12 1.10 1.13 1.18 1.16 1.10 1.08 1.13 1.16 1.15 1.13  
Initial Bse: 0 2540 29 0 3011 133 187 183 61 10 192 19  
Added Vol: 0 121 18 0 137 33 45 84 0 13 62 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2661 47 0 3148 166 232 267 61 23 254 19  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2715 48 0 3212 169 237 273 62 24 259 20  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2715 48 0 3212 169 237 273 62 24 259 20

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.53 0.89 1.00 0.89 0.89 0.64 0.64 0.64 0.93 0.93  
Lanes: 0.00 2.97 0.03 0.00 2.85 0.15 1.24 1.43 0.33 0.08 0.86 0.06  
Final Sat: 0 3009 53 0 4795 252 1511 1741 398 139 1505 114

Capacity Analysis Module:  
Vol/Sat: 0.00 0.90 0.90 0.00 0.67 0.67 0.16 0.16 0.16 0.17 0.17  
Crit Moves: 0.66 0.66 0.66 0.66 0.66 0.66 0.26 0.26 0.26 0.26 0.26  
Green/Cycle: 0.00 1.37 1.37 0.00 1.01 1.01 0.61 0.61 0.61 0.67 0.67  
Volume/Cap: 0.0 175 175.3 0.0 26.3 26.3 35.9 35.9 35.9 41.4 41.4  
Delay/Veh: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
User DelAdj: 0.0 175 175.3 0.0 26.3 26.3 35.9 35.9 35.9 41.4 41.4  
AdjDel/Veh: 0.0 175 175.3 0.0 26.3 26.3 35.9 35.9 35.9 41.4 41.4  
LOS by Move: A F F A C C D D D D D  
HCM2kAvgQ: 0 65 106 0 40 40 6 6 6 9 9  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4c

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1140 19th / Winston  
Cycle (sec): 100 Critical Vol./Cap.(X): 1.699  
Loss Time (sec): 13 Average Delay (sec/veh): 207.7  
Optimal Cycle: 180 Level of Service: F  
\*\*\*\*\*

Street Name: 19th Winston  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Protected Include Permitted Include Permitted Include  
Rights: 16 44 44 44 44 44 44 44 44 26 26 26 26  
Min. Green: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Y+R: 2 0 2 1 0 0 0 2 1 0 1 1 0 1 0 1 0 1 0  
Lanes: 2 0 2 1 0 0 0 2 1 0 1 1 0 1 0 1 0 1 0

Volume Module:  
Base Vol: 524 2162 50 0 2624 168 245 364 347 95 351 45  
Growth Adj: 1.03 1.12 1.05 1.09 1.18 1.06 1.05 1.00 1.09 1.06 1.00 1.03  
Initial Bse: 539 2411 53 0 3092 178 258 364 377 101 351 46  
Added Vol: 120 22 -34 0 81 102 116 374 133 36 325 1  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 659 2433 19 0 3173 280 374 738 510 137 676 47  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 672 2483 19 0 3238 286 382 753 520 139 690 48  
Reduced Vol: 672 2483 19 0 3238 286 382 753 520 139 690 48  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 672 2483 19 0 3238 286 382 753 520 139 690 48

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.90 0.89 0.89 1.00 1.34 0.83 0.31 0.23 0.83 0.49 0.49  
Lanes: 2.00 2.98 0.02 0.00 3.00 1.00 1.00 2.00 1.00 0.32 1.57  
Final Sat: 3432 5039 39 0 7625 1583 586 878 1583 296 1465 102

Capacity Analysis Module:  
Vol/Sat: 0.20 0.49 0.49 0.00 0.42 0.18 0.65 0.86 0.33 0.47 0.47  
Crit Moves: 0.44 0.44 0.44 0.44 0.44 0.44 0.27 0.27 0.27 0.27 0.27  
Green/Cycle: 0.16 0.44 0.44 0.44 0.44 0.44 0.27 0.27 0.27 0.27 0.27  
Volume/Cap: 1.22 1.12 1.12 0.00 0.97 0.41 2.46 3.24 1.24 1.78 1.78  
Delay/Veh: 158.3 84.4 84.4 0.0 32.5 18.0 700.6 1050 163.6 394.4 394.4  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 158.3 84.4 84.4 0.0 32.5 18.0 700.6 1050 163.6 394.4 394.4  
LOS by Move: F F F A C B F F F F F  
HCM2kAvgQ: 18 39 39 0 41 5 43 47 31 39 39  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report														
2000 HCM Unsignalized Method (Future Volume Alternative)														
*****														
Intersection #1150 19th / Buckingham														
*****														
Average Delay (sec/veh): 28.3 Worst Case Level of Service: F[604.0]														
*****														
Street Name: Buckingham														
Approach: 19th														
Movement: North Bound South Bound East Bound West Bound														
L - T - R L - T - R L - T - R L - T - R														
Control: Uncontrolled Uncontrolled Uncontrolled Uncontrolled Stop Sign Stop Sign														
Rights: Include Include Include Include Include Include														
Lanes: 0 0 3 0 0 0 0 3 0 1 0 0 0 1 0 0 0 0														
-----														
Volume Module:														
Base Vol: 0 2736 0 0 2996 68 0 0 278 0 0 0 0														
Growth Adj: 1.04 1.12 1.07 1.10 1.18 1.07 1.07 1.02 1.10 1.07 1.00 1.04														
Initial Bse: 0 3051 0 0 3531 73 0 0 305 0 0 0 0														
Added Vol: 0 108 0 0 192 58 0 0 39 0 0 0 0														
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0														
Initial Fut: 0 3159 0 0 3723 131 0 0 344 0 0 0 0														
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00														
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98														
PHF Volume: 0 3224 0 0 3799 133 0 0 351 0 0 0 0														
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0														
FinalVolume: 0 3224 0 0 3799 133 0 0 351 0 0 0 0														
-----														
Critical Gap Module:														
Critical Gap:xxxx xxx xxxxxx xxxxxx xxxxxx xxxxxx 6.9 xxxxxx xxxxxx xxxxxx														
FollowUpTime:xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 3.3 xxxxxx xxxxxx xxxxxx														
-----														
Capacity Module:														
Conflict Vol: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 1266 xxxxxx xxxxxx xxxxxx														
Potent Cap: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 160 xxxxxx xxxxxx xxxxxx														
Move Cap: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 160 xxxxxx xxxxxx xxxxxx														
Volume/Cap: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 2.20 xxxxxx xxxxxx xxxxxx														
-----														
Level of Service Module:														
2Way/95thQ: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 28.5 xxxxxx xxxxxx xxxxxx														
Control Del:xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 604.0 xxxxxx xxxxxx xxxxxx														
LOS by Move: LOS * * * * F														
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT														
Shared Cap: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx														
SharedQueue:xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx														
Shrd ConDel:xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx														
Shared LOS: Shared LOS * * * * * * * * * * * * * *														
ApproachDel: xxxxxx xxxxxx 604.0 xxxxxx														
ApproachLOS: * F * * * * * * * *														
*****														
Note: Queue reported is the number of cars per lane.														
*****														

Level Of Service Computation Report															
2000 HCM Operations Method (Future Volume Alternative)															
Intersection #1160 19th / Holloway															
Cycle (sec):	120	Critical Vol./Cap.(X):										0.884			
Loss Time (sec):	0	Average Delay (sec/veh):										85.1			
Optimal Cycle:	124	Level Of Service:										F			
*****															
Street Name:	North Bound				South Bound				East Bound				West Bound		
Approach:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Movement:	Uncontrolled				Uncontrolled				Uncontrolled				Uncontrolled		
Control:	Permitted				Permitted				Permitted				Permitted		
Rights:	Include				Include				Include				Include		
Y+R:	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Lanes:	0	0	2	1	0	0	0	4	0	1	0	1	0	0	1
*****															
Volume Module:															
Base Vol:	0	2489	143	0	3047	145	88	167	88	45	296	41			
Growth Adj:	1.23	1.12	1.15	1.18	1.18	1.27	1.15	1.19	1.18	1.27	1.35	1.23			
Initial Bse:	0	2776	165	0	3591	184	101	199	104	57	401	51			
Added Vol:	0	47	-35	0	165	66	60	22	54	-2	49	1			
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0			
Initial Fut:	0	2823	130	0	3756	250	161	221	158	55	450	52			
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98			
PHF Volume:	0	2881	132	0	3833	255	165	225	161	56	459	53			
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0			
Reduced Vol:	0	2881	132	0	3833	255	165	225	161	56	459	53			
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
FinalVolume:	0	2881	132	0	3833	255	165	225	161	56	459	53			
*****															
Saturation Flow Module:															
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Adjustment:	1.00	0.89	0.89	1.00	0.89	0.83	0.51	0.51	0.51	0.65	0.65	0.65			
Lanes:	0.00	2.87	0.13	0.00	4.00	1.00	0.60	0.82	0.58	0.20	1.62	0.18			
Final Sat.:	0	4826	222	0	6778	1583	574	785	562	243	1991	228			
*****															
Capacity Analysis Module:															
Vol/Sat:	0.00	0.60	0.60	0.00	0.57	0.16	0.29	0.29	0.29	0.23	0.23	0.23			
Crit Moves:	****														
Green/Cycle:	0.51	0.51	0.51	0.51	0.51	0.51	0.31	0.31	0.31	0.31	0.31	0.31			
Volume/Cap:	0.00	1.18	1.18	0.00	1.12	0.32	0.94	0.94	0.94	0.94	0.75	0.75			
Delay/Veh:	0.0	108	108.3	0.0	80.4	14.3	65.5	65.5	65.5	44.5	44.5	44.5			
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
AdjDel/Veh:	0.0	108	108.3	0.0	80.4	14.3	65.5	65.5	65.5	44.5	44.5	44.5			
LOS by Move:	A	F	F	A	F	B	E	E	E	D	D	D			
HCM2kVagQ:	0	59	59	0	51	4	14	14	14	12	12	12			
*****															
Note: Queue reported is the number of cars per lane.															



Tier 4C PM		Mon Jan 4, 2010 09:48:59				Page 20-1			
-----									
		19th Ave CS				Tier 4C			
-----									
Level of Service Computation Report									
2000 HCM Operations Method (Future Volume Alternative)									
*****									
Intersection #1170 19th / Crespi									
*****									
Cycle (sec):	120	Critical Vol./Cap.(X):				0.764			
Loss Time (sec):	0	Average Delay (sec/veh):				87.1			
Optimal Cycle:	144	Level Of Service:				F			
*****									
Street Name:		19th		Crespi					
Approach:		North Bound		South Bound		East Bound		West Bound	
Movement:		L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:		Protected	Permitted	Split Phase	Split Phase	Ignore	Split Phase	Include	Split Phase
Rights:		Include	Include						
Min. Green:		59 59 0	0 64 64	21 0 21	0 21 0	0 0 0	0 0 0	0 0 0	0 0 0
Y+R:		4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:		1 0 3 0 0	0 0 3 1 0	1 0 0 0 1	1 0 0 0 1	1 0 0 0 1	1 0 0 0 1	1 0 0 0 1	1 0 0 0 1
-----									
Volume Module:									
Base Vol:		60 2485		0 0 3081		99 147		0 97 0 0 0 0	
Growth Adj:		1.15 1.12		1.00 1.18		1.18 1.00		1.00 1.00 1.18 1.19 1.15	
Initial Bse:		69 2772		0 0 3631		117 147		0 97 0 0 0 0	
Added Vol:		157 99		0 0 219		-2 -88		0 17 0 0 0 0	
PasserByVol:		0 0		0 0 0		0 0 0		0 0 0 0 0 0	
Initial Fut:		226 2871		0 0 3850		115 59		0 114 0 0 0 0	
User Adj:		1.00 1.00		1.00 1.00		1.00 1.00		0.00 1.00 1.00 1.00	
PHF Adj:		0.98 0.98		0.98 0.98		0.98 0.98		0.00 0.98 0.98 0.98	
PHF Volume:		231 2929		0 0 3929		118 60		0 0 0 0 0 0	
Reduct Vol:		0 0		0 0 0		0 0 0		0 0 0 0 0 0	
Reduced Vol:		231 2929		0 0 3929		118 60		0 0 0 0 0 0	
PCE Adj:		1.00 1.00		1.00 1.00		1.00 1.00		0.00 1.00 1.00 1.00	
MLF Adj:		1.00 1.00		1.00 1.00		1.00 1.00		0.00 1.00 1.00 1.00	
FinalVolume:		231 2929		0 0 3929		118 60		0 0 0 0 0 0	
-----									
Saturation Flow Module:									
Sat/Lane:		1900 1900		1900 1900		1900 1900		1900 1900	
Adjustment:		0.93 0.89		1.00 0.89		0.89 0.93		1.00 1.00 1.00 1.00	
Lanes:		1.00 3.00		0.00 0.00		0.12 1.00		0.00 1.00 0.00 1.00	
Final Sat.:		1769 5083		0 0 6554		196 1769		0 1900 1900 0 1900	
-----									
Capacity Analysis Module:									
Vol/Sat:		0.13 0.58		0.00 0.60		0.60 0.03		0.00 0.00 0.00 0.00	
Crit Moves:		****		****		****		****	
Green/Cycle:		0.44 0.44		0.61 0.61		0.61 0.20		0.20 0.00 0.00 0.00	
Volume/Cap:		0.30 1.31		0.00 0.98		0.98 0.17		0.00 0.00 0.00 0.00	
Delay/Veh:		23.2 179		0.0 24.4		24.4 48.4		0.0 0.0 0.0 0.0	
User DelAdj:		1.00 1.00		1.00 1.00		1.00 1.00		1.00 1.00 1.00 1.00	
AdjDel/Veh:		23.2 179		0.0 24.4		24.4 48.4		0.0 0.0 0.0 0.0	
LOS by Move:		C F		A C		C D		A A A A A A	
HCM2kAvgQ:		5 79		0 44		44 2		0 0 0 0 0 0	
*****									
Note: Queue reported is the number of cars per lane.									

Tier 4c PM		Mon Jan 4, 2010 09:48:59				Page 21-1			
19th Ave CS									
Tier 4c									
Level of Service Computation Report									
2000 HCM Operations Method (Future Volume Alternative)									
Intersection #181 Chumadero / Brotherhood									
Cycle (sec):	100	Critical Vol./Cap.(X):				0.932			
Loss Time (sec):	8	Average Delay (sec/veh):				84.0			
Optimal Cycle:	120	Level Of Service:				F			
Street Name: Chumadero Brotherhood									
Approach:	North Bound	South Bound	East Bound	West Bound					
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Split Phase	Split Phase	Protected	Protected	Protected	Protected	Protected	Protected	Protected
Rights:	Include	Include	Include	Include	Include	Include	Include	Include	Include
Min. Green:	0 0 0	15 15 15	20 48 48	20 48 48	20 48 48	20 48 48	20 48 48	20 48 48	20 48 48
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 1 0 0	0 0 1 0 0	1 0 2 0 0	0 0 2 0 0	0 0 2 0 0	0 0 2 0 0	0 0 2 0 0	0 0 2 0 0	0 0 2 0 0
Volume Module:									
Base Vol:	0 0	79	0 12	39 1471	0	0 1625	121		
Growth Adj:	1.28 1.00	1.08	1.27 1.38	1.47	1.08 1.16	1.27	1.47 1.57	1.28	
Initial Bse:	0 0	0 100	0 18	42 1710	0	0 2550	155		
Added Vol:	0 0	0 62	0 -11	-23 442	0	0 657	167		
PasserByVol:	0 0	0 0	0 0	0 0	0 0	0 0	0 0		
Initial Fut:	0 0	0 162	0 7	19 2152	0	0 3207	322		
User Adj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	
PHF Adj:	0.98 0.98	0.98	0.98 0.98	0.98	0.98 0.98	0.98	0.98 0.98	0.98	
PHF Volume:	0 0	0 166	0 7	19 2196	0	0 3273	328		
Reduc Vol:	0 0	0 0	0 0	0 0	0 0	0 0	0 0		
Reduced Vol:	0 0	0 166	0 7	19 2196	0	0 3273	328		
PCE Adj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	
MLF Adj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	
FinalVolume:	0 0	0 166	0 7	19 2196	0	0 3273	328		
Saturation Flow Module:									
Sat/Lane:	1900 1900	1900	1900 1900	1900	1900 1900	1900	1900 1900	1900	
Adjustment:	0.80 0.80	1.00	0.71 0.75	0.71	0.93 0.93	1.00	1.00 0.88	0.88	
Lanes:	0.00 1.00	0.00	0.96 0.00	0.04	1.00 2.00	0.00	0.00 2.73	0.27	
Final Sat.:	0 1520	0 1299	0 54	1769 3538	0	0 4555	457		
Capacity Analysis Module:									
Vol/Sat:	0.00 0.00	0.00	0.13 0.00	0.13	0.01 0.62	0.00	0.00 0.72	0.72	
Crit Moves:	****	****	****	****	****	****	****	****	
Green/Cycle:	0.00 0.00	0.00	0.15 0.00	0.15	0.20 0.77	0.00	0.00 0.57	0.57	
Volume/Cap:	0.00 0.00	0.00	0.85 0.00	0.85	0.05 0.81	0.00	0.00 1.26	1.26	
Delay/Veh:	0.0 0.0	0.0	80.0 0.0	80.0	32.6 2.7	0.0	0.0 134.0	134.0	
User DelAdj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	
AdjDel/Veh:	0.0 0.0	0.0	80.0 0.0	80.0	32.6 2.7	0.0	0.0 134.0	134.0	
LOS by Move:	A A	A	A F	A F	C A	A F	A F	F	
HCM2kAVGQ:	0 0	0 8	0 8	0 4	0 0	0 72	72		
Note: Queue reported is the number of cars per lane.									

Tier 4c PM	Mon Jan 4, 2010 09:48:59	Page 23-1
19th Ave CS		
Tier 4c		
Level Of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1190 Sunset / Taraval		
Cycle (sec):	60	Critical Vol./Cap.(X): 0.960
Loss Time (sec):	10	Average Delay (sec/veh): 125.6
Optimal Cycle:	100	Level Of Service: F
Street Name: Sunset Taraval		
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Permitted	Permitted
Include	Include	Include
Min. Green:	29 29 29	29 29 29
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 2 1 0	0 0 2 1 0
Volume Module:		
Base Vol:	0 2129 96	0 1790 117
Growth Adj:	1.14 1.20 1.12	1.15 1.26 1.17
Initial Bse:	0 2553 108	0 2261 137
Added Vol:	0 483 0	0 513 0
PasserByVol:	0 0 0	0 0 0
Initial Fut:	0 3036 108	0 2774 137
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	0 3098 110	0 2831 140
Reduc Vol:	0 0 0	0 0 0
Reduced Vol:	0 3098 110	0 2831 140
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00
FinalVolume:	0 3098 110	0 2831 140
Saturation Flow Module:		
Sat/Lane:	1900 1900	1900 1900
Adjustment:	1.00 0.89	0.89 0.89
Lanes:	0.00 2.90	0.10 0.00
Final Sat:	0 4885 173	0 4810 238
Capacity Analysis Module:		
Vol/Sat:	0.00 0.63	0.63 0.59
Crit Moves:	0.00 0.48	0.48 0.35
Green/Cycle:	0.00 1.31	1.31 1.22
Volume/Cap:	0.0 159 159.1	0.0 117 117.5
Delay/Veh:	1.00 1.00	1.00 1.00
User DelAdj:	0.0 159 159.1	0.0 117 117.5
AdjDel/Veh:	0.0 159 159.1	0.0 117 117.5
LOS by Move:	A F F	A F F
HCM2KAVGQ:	0 58 58	0 47 47
Note: Queue reported is the number of cars per lane.		

Tier 4c PM	Mon Jan 4, 2010 09:48:59	Page 22-1
19th Ave CS		
Tier 4c		
Level Of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1182 Thomas More / Brotherhood		
Cycle (sec):	100	Critical Vol./Cap.(X): 0.572
Loss Time (sec):	8	Average Delay (sec/veh): 22.3
Optimal Cycle:	97	Level Of Service: C
Street Name: Thomas More Brotherhood		
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Split Phase	Protected
Include	Include	Include
Min. Green:	20 20 20	21 48 48
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 1 0 0	0 0 2 1 0
Volume Module:		
Base Vol:	17 0 32	0 0 1535
Growth Adj:	1.28 1.00 1.08	1.27 1.38 1.47
Initial Bse:	22 0 34	0 0 1785
Added Vol:	0 0 0	0 0 504
PasserByVol:	0 0 0	0 0 0
Initial Fut:	22 0 34	0 0 2289
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	22 0 35	0 0 2335
Reduc Vol:	0 0 0	0 0 0
Reduced Vol:	22 0 35	0 0 2335
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00
FinalVolume:	22 0 35	0 0 2335
Saturation Flow Module:		
Sat/Lane:	1900 1900	1900 1900
Adjustment:	0.88 1.00	0.89 0.89
Lanes:	0.39 0.00	0.61 0.00
Final Sat:	0 1027 0	0 0 5036
Capacity Analysis Module:		
Vol/Sat:	0.03 0.00	0.00 0.00
Crit Moves:	0.20 0.00	0.00 0.51
Green/Cycle:	0.17 0.00	0.00 0.91
Volume/Cap:	34.2 0.0	0.0 28.5
Delay/Veh:	1.00 1.00	1.00 1.00
User DelAdj:	34.2 0.0	0.0 28.5
AdjDel/Veh:	34.2 0.0	0.0 28.5
LOS by Move:	C A C	A A C
HCM2KAVGQ:	2 0 2	0 0 26
Note: Queue reported is the number of cars per lane.		

19th Ave CS  
Tier 4c

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1200 Sunset / Ocean  
Cycle (sec): 60 Critical Vol./Cap.(X): 0.827  
Loss Time (sec): 9 Average Delay (sec/veh): 30.5  
Optimal Cycle: 63 Level Of Service: C  
\*\*\*\*\*

Street Name: Sunset  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 31 31 31 31 19 19 19 19  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 1 0 0 1 1 0 0 1 0 0 1 0 1

Volume Module:  
Base Vol: 0 1682 14 1 1588 60 30 61 18 37 47 226  
Growth Adj: 1.11 1.24 1.10 1.00 1.00 1.10 1.00 1.00 1.00 1.00 1.00 1.11  
Initial Bse: 0 2085 15 1 1589 60 33 61 18 37 47 252  
Added Vol: 0 590 0 0 670 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2675 15 1 2259 60 33 61 18 37 47 252  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2729 16 1 2305 61 34 62 18 38 48 257  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2729 16 1 2305 61 34 62 18 38 48 257  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2729 16 1 2305 61 34 62 18 38 48 257

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 0.89 0.79 0.88 0.88 0.88 0.76 0.98 0.83  
Lanes: 0.00 2.98 0.02 0.01 2.92 0.07 0.30 0.54 0.16 1.00 1.00  
Final Sat.: 0 5049 29 2 4407 117 493 909 268 1450 1862 1583

Capacity Analysis Module:  
Vol/Sat: 0.00 0.54 0.54 0.52 0.52 0.52 0.07 0.07 0.07 0.03 0.03 0.16  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.00 0.53 0.53 0.53 0.32 0.32 0.32 0.32 0.32 0.32 0.32  
Volume/Cap: 0.00 1.01 1.01 0.98 0.98 0.98 0.22 0.22 0.22 0.08 0.08 0.51  
Delay/Veh: 0.0 34.7 34.7 28.0 28.0 28.0 16.0 16.0 16.0 14.7 14.6 20.4  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 34.7 34.7 28.0 28.0 28.0 16.0 16.0 16.0 14.7 14.6 20.4  
LOS by Move: A C C C C B B B B B C  
HCM2kVgQ: 0 21 21 24 24 24 2 2 2 0 1 4  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4c

Level Of Service Computation Report  
2000 HCM 4-Way Stop Method (Future Volume Alternative)  
Intersection #1210 Skyline / Sloat / 39th  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.925  
Loss Time (sec): 0 Average Delay (sec/veh): 29.4  
Optimal Cycle: 0 Level Of Service: D  
\*\*\*\*\*

Street Name: Skyline / 39th  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Stop Sign Stop Sign Stop Sign Stop Sign  
Rights: Ignore Include Ignore Include  
Min. Green: 0 0 0 0 0 0 0 0  
Y+R: 0 1 0 2 0 0 0 1 0 0 1 1 0 1 2 0 1 1 0  
Lanes: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Volume Module:  
Base Vol: 327 0 565 0 21 7 2 350 163 450 435 64  
Growth Adj: 1.13 1.23 1.24 1.16 1.08 1.05 1.24 1.25 1.16 1.05 1.03 1.13  
Initial Bse: 371 0 701 0 23 7 2 437 189 475 450 73  
Added Vol: 0 0 3 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 371 0 704 0 23 7 2 480 189 477 485 73  
User Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.00 0.98 0.98 0.98 0.98 0.98 0.00 0.98 0.98 0.98  
PHF Volume: 378 0 0 23 8 3 489 0 486 495 74  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 378 0 0 23 8 3 489 0 486 495 74  
PCE Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00  
FinalVolume: 378 0 0 23 8 3 489 0 486 495 74

Saturation Flow Module:  
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Lanes: 1.00 0.00 2.00 0.00 0.75 0.25 0.01 1.99 1.00 2.00 1.74 0.26  
Final Sat.: 409 0 912 0 286 93 4 771 406 839 785 119

Capacity Analysis Module:  
Vol/Sat: 0.92 xxxx 0.00 xxxx 0.08 0.63 0.63 0.00 0.58 0.63 0.62  
Crit Moves: \*\*\*\*  
Delay/Veh: 56.1 0.0 0.0 0.0 12.8 12.8 25.4 25.3 0.0 21.7 22.6 21.9  
AdjDel/Veh: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 56.1 0.0 0.0 0.0 12.8 12.8 25.4 25.3 0.0 21.7 22.6 21.9  
LOS by Move: F \* \* B D D \* C C C  
ApproachDel: 56.1 12.8 25.3 25.3 22.1  
Delay Adj: 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 56.1 12.8 25.3 25.3 22.1  
LOS by Appr: F B B D C  
AllwayAvgQ: 5.1 5.1 0.0 0.1 0.1 1.5 1.5 0.0 1.2 1.5 1.5  
\*\*\*\*\*

Note: Queue reported is the number of cars per lane.



Level of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1221 Skyline / Lake Merced (WBR)  
\*\*\*\*\*  
Average Delay (sec/veh): 2.5 Worst Case Level Of Service: C [17.5]  
\*\*\*\*\*  
Street Name: Skyline Lake Merced (WBR)  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign  
Rights: Include Include Include Include  
Lanes: 0 0 2 0 0 1 0 2 0 0 0 0 0 0 0 0 0 0 1  
-----  
Volume Module:  
Base Vol: 0 853 0 100 489 0 0 0 0 0 0 0 0 133  
Growth Adj: 1.51 1.22 1.12 1.07 1.12 1.46 1.12 1.02 1.07 1.46 1.81 1.51  
Initial Bse: 0 1041 0 107 548 0 0 0 0 0 0 0 0 201  
Added Vol: 0 3 0 0 2 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 1044 0 107 550 0 0 0 0 0 0 0 0 201  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 1065 0 109 561 0 0 0 0 0 0 0 0 205  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0  
FinalVolume: 0 1065 0 109 561 0 0 0 0 0 0 0 0 205  
-----  
Critical Gap Module:  
Critical Gp:xxxxx xxxxx 4.1 xxxx xxxxx xxxxx xxxxx xxxxx 6.9  
FollowUpPrim:xxxxx xxxx xxxxx 2.2 xxxx xxxxx xxxxx xxxxx xxxxx 3.3  
-----  
Capacity Module:  
Cnflct Vol: xxxx xxxx xxxxx 1065 xxxx xxxxx xxxxx xxxxx 532  
Potent Cap.: xxxx xxxx xxxxx 650 xxxx xxxxx xxxxx xxxxx 492  
Move Cap.: xxxx xxxx xxxxx 650 xxxx xxxxx xxxxx xxxxx 492  
Volume/Cap: xxxx xxxx xxxxx 0.17 xxxx xxxxx xxxxx xxxxx 0.42  
-----  
Level of Service Module:  
2Way95thQ: xxxx xxxx xxxxx 0.6 xxxx xxxxx xxxxx xxxxx 2.0  
Control Del:xxxxx xxxx xxxxx 11.7 xxxx xxxxx xxxxx xxxxx 17.5  
LOS by Move: A B C  
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Shared Cap.: xxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxxx  
SharedQueue:xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
Shrd Condel:xxxxx xxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
Shared LOS: \* \* \* \* \*  
ApproachDel: xxxxxx xxxxxx 17.5 C  
ApproachLOS: \* \* \* \* \*  
\*\*\*\*\*  
Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

Level of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1222 Skyline / Lake Merced (WBLT)  
\*\*\*\*\*  
Average Delay (sec/veh): 7.4 Worst Case Level Of Service: F [118.6]  
\*\*\*\*\*  
Street Name: Skyline Lake Merced (WBLT)  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign  
Rights: Include Include Include Include  
Lanes: 1 0 1 1 0 0 0 2 0 1 0 0 0 0 1 0 0 0  
-----  
Volume Module:  
Base Vol: 8 853 118 0 468 21 0 0 0 0 75 3 0  
Growth Adj: 1.51 1.22 1.12 1.07 1.12 1.46 1.12 1.02 1.07 1.46 1.81 1.51  
Initial Bse: 12 1044 133 0 524 31 0 0 0 0 110 5 0  
Added Vol: 0 3 0 0 2 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 12 1047 133 0 526 31 0 0 0 0 110 5 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 12 1069 135 0 537 31 0 0 0 0 112 6 0  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0  
FinalVolume: 12 1069 135 0 537 31 0 0 0 0 112 6 0  
-----  
Critical Gap Module:  
Critical Gp: 4.1 xxxx xxxxx xxxxx xxxxx xxxxx 6.8 6.5 xxxxx  
FollowUpPrim: 2.2 xxxx xxxxx xxxxx xxxxx xxxxx 3.5 4.0 xxxxx  
-----  
Capacity Module:  
Cnflct Vol: 568 xxxx xxxxx xxxxx xxxxx xxxxx 1429 1729 xxxxx  
Potent Cap.: 1000 xxxx xxxxx xxxxx xxxxx xxxxx 126 87 xxxxx  
Move Cap.: 1000 xxxx xxxxx xxxxx xxxxx xxxxx 124 86 xxxxx  
Volume/Cap: 0.01 xxxx xxxxx xxxxx xxxxx xxxxx 0.90 0.06 xxxxx  
-----  
Level of Service Module:  
2Way95thQ: 0.0 xxxx xxxxx xxxxx xxxxx xxxxx 5.7 0.2 xxxxx  
Control Del: 8.6 xxxx xxxxx xxxxx xxxxx xxxxx 122.0 49.5 xxxxx  
LOS by Move: A \* \* \* \* \* F E \*  
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Shared Cap.: xxxx xxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
SharedQueue:xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
Shrd Condel:xxxxx xxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
Shared LOS: \* \* \* \* \*  
ApproachDel: xxxxxx xxxxxx 118.6 F  
ApproachLOS: \* \* \* \* \*  
\*\*\*\*\*  
Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*



19th Ave CS  
Tier 4c

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1250 Lake Merced / Font  
\*\*\*\*\*  
Cycle (sec): 90 Critical Vol./Cap.(X): 1.546  
Loss time (sec): 7 Average Delay (sec/veh): 179.3  
Optimal Cycle: 180 Level of Service: F  
\*\*\*\*\*

Street Name: Lake Merced Font  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Protected Split Phase  
Rights: 43 43 43 15 61 61 0 0 0 22 0 22  
Min. Green: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Y+R: 0 0 2 0 1 1 0 2 0 0 0 0 0 1 0 0 0 1  
Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 0 1 0 0 0 1

Volume Module:  
Base Vol: 0 1683 17 176 1644 0 0 0 0 104 0 331  
Growth Adj: 1.08 1.12 1.10 1.13 1.18 1.11 1.10 1.08 1.13 1.11 1.04 1.08  
Initial Bse: 0 1877 19 198 1937 0 0 0 0 115 0 357  
Added Vol: 0 359 -10 417 527 0 0 0 0 -9 0 304  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2236 9 615 2464 0 0 0 0 106 0 661  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2282 9 628 2515 0 0 0 0 109 0 674  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2282 9 628 2515 0 0 0 0 109 0 674  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2282 9 628 2515 0 0 0 0 109 0 674

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.83 0.93 0.93 1.00 1.00 1.00 1.00 0.93 1.00 0.83  
Lanes: 0.00 2.00 1.00 1.00 2.00 0.00 0.00 0.00 0.00 1.00 0.00 1.00  
Final Sat.: 0 3538 1583 1769 3538 0 0 0 0 1769 0 1583

Capacity Analysis Module:  
Vol/Sat: 0.00 0.64 0.01 0.35 0.71 0.00 0.00 0.00 0.00 0.06 0.00 0.43  
Crit Moves: 0.48 0.48 0.48 0.17 0.68 0.68 0.00 0.00 0.00 0.24 0.24 0.24  
Green/Cycle: 0.48 0.48 0.01 2.13 1.05 0.00 0.00 0.00 0.00 0.25 0.00 1.74  
Volume/Cap: 0.00 1.35 0.01 2.13 1.05 0.00 0.00 0.00 0.00 0.25 0.00 1.74  
Delay/Veh: 0.0 180 9.9 556.9 37.7 0.0 0.0 0.0 0.0 28.8 0.0 379.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 180 9.9 556.9 37.7 0.0 0.0 0.0 0.0 28.8 0.0 379.0  
LOS by Move: A F A A F D A A A A C A F  
HCM2kAvgQ: 0 69 0 59 50 0 0 0 0 3 0 55

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4c

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
\*\*\*\*\*  
Intersection #1261 Lake Merced / Vidal  
\*\*\*\*\*  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.887  
Loss time (sec): 12 Average Delay (sec/veh): 36.0  
Optimal Cycle: 104 Level of Service: D  
\*\*\*\*\*

Street Name: Lake Merced Vidal  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Protected Split Phase  
Rights: 41 41 41 11 59 59 0 0 0 20 20 20  
Min. Green: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Y+R: 0 0 2 0 1 1 0 2 0 0 0 0 0 1 0 0 0 1  
Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 0 1 0 0 0 1

Volume Module:  
Base Vol: 0 1811 9 13 1748 0 0 0 0 10 0 11  
Growth Adj: 1.00 1.12 1.16 1.19 1.18 1.00 1.00 1.00 1.00 1.91 1.00 1.88  
Initial Bse: 0 2028 10 15 2063 0 0 0 0 19 0 21  
Added Vol: 0 290 65 102 415 0 0 0 0 58 0 59  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2318 75 117 2478 0 0 0 0 77 0 80  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2366 77 120 2528 0 0 0 0 79 0 81  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2366 77 120 2528 0 0 0 0 79 0 81  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2366 77 120 2528 0 0 0 0 79 0 81

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.83 0.93 0.93 1.00 1.00 1.00 1.00 0.93 1.00 0.83  
Lanes: 0.00 2.00 1.00 1.00 2.00 0.00 0.00 0.00 0.00 1.00 0.00 1.00  
Final Sat.: 0 3538 1583 1769 3538 0 0 0 0 1769 0 1583

Capacity Analysis Module:  
Vol/Sat: 0.00 0.67 0.05 0.07 0.71 0.00 0.00 0.00 0.00 0.04 0.00 0.05  
Crit Moves: 0.63 0.63 0.63 0.10 0.77 0.77 0.00 0.00 0.00 0.15 0.15 0.15  
Green/Cycle: 0.63 0.63 0.08 0.68 0.93 0.00 0.00 0.00 0.00 0.30 0.00 0.34  
Volume/Cap: 0.00 1.06 0.08 0.68 0.93 0.00 0.00 0.00 0.00 0.40 0.00 0.42  
Delay/Veh: 0.0 56.3 7.3 62.4 16.3 0.0 0.0 0.0 0.0 40.6 0.0 42.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 56.3 7.3 62.4 16.3 0.0 0.0 0.0 0.0 40.6 0.0 42.0  
LOS by Move: A E A E B A A A A D A D  
HCM2kAvgQ: 0 45 1 3 31 0 0 0 0 2 0 3

Note: Queue reported is the number of cars per lane.



19th Ave CS  
Tier 4c

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1262 Lake Merced / Acevedo  
Cycle (sec): 100 Critical Vol./Cap.(X): 0.959  
Loss Time (sec): 12 Average Delay (sec/veh): 34.6  
Optimal Cycle: 146 Level Of Service: C

Street Name: Lake Merced  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Protected Protected Protected Split Phase Split Phase  
Rights: Include Include Include Include Include  
Min. Green: 41 41 11 59 59 0 0 0 20 20 20  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 0 0 1 0 0

Volume Module:  
Base Vol: 0 1806 11 14 1743 0 0 0 0 9 0 15  
Growth Adj: 1.88 1.12 1.16 1.19 1.18 1.91 1.16 1.20 1.19 1.91 2.64 1.88  
Initial Bse: 0 2023 13 17 2057 0 0 0 0 17 0 28  
Added Vol: 0 278 79 108 365 0 0 0 0 56 0 77  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2301 92 125 2422 0 0 0 0 73 0 105  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2348 94 127 2471 0 0 0 0 75 0 107  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2348 94 127 2471 0 0 0 0 75 0 107

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.83 0.93 0.93 1.00 1.00 1.00 0.88 1.00 0.88  
Lanes: 0.00 2.00 1.00 1.00 2.00 0.00 0.00 0.00 0.41 0.00 0.59  
Final Sat: 0 3538 1583 1769 3538 0 0 0 0 689 0 990

Capacity Analysis Module:  
Vol/Sat: 0.00 0.66 0.06 0.07 0.70 0.00 0.00 0.00 0.00 0.11 0.00 0.11  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.63 0.63 0.63 0.10 0.77 0.77 0.00 0.00 0.00 0.15 0.15  
Volume/Cap: 0.00 1.05 0.09 0.72 0.91 0.90 0.00 0.00 0.00 0.72 0.00 0.72  
Delay/Veh: 0.0 53.5 7.5 65.8 14.5 0.0 0.0 0.0 0.0 57.0 0.0 57.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 53.5 7.5 65.8 14.5 0.0 0.0 0.0 0.0 57.0 0.0 57.0  
LOS by Move: A D A E B A A A A A E  
HCM2kAvgQ: 0 44 1 4 31 0 0 0 0 7 0 7

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4c

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1263 Lake Merced / Higuera  
Cycle (sec): 100 Critical Vol./Cap.(X): 1.135  
Loss Time (sec): 12 Average Delay (sec/veh): 45.4  
Optimal Cycle: 180 Level Of Service: D

Street Name: Lake Merced  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Protected Protected Split Phase Split Phase  
Rights: Include Include Include Include Include  
Min. Green: 41 41 41 11 59 59 0 0 0 20 0 20  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 0 0 1 0 0

Volume Module:  
Base Vol: 0 1795 41 23 1730 0 0 0 0 30 0 22  
Growth Adj: 1.88 1.12 1.16 1.19 1.18 1.91 1.16 1.20 1.19 1.91 2.64 1.88  
Initial Bse: 0 2002 47 27 2039 0 0 0 0 57 0 41  
Added Vol: 0 241 280 174 247 0 0 0 0 180 0 116  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2243 327 201 2286 0 0 0 0 237 0 157  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2289 334 205 2332 0 0 0 0 242 0 160  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2289 334 205 2332 0 0 0 0 242 0 160

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.83 0.93 0.93 1.00 1.00 1.00 0.90 1.00 0.90  
Lanes: 0.00 2.00 1.00 1.00 2.00 0.00 0.00 0.00 0.60 0.00 0.40  
Final Sat: 0 3538 1583 1769 3538 0 0 0 0 1029 0 682

Capacity Analysis Module:  
Vol/Sat: 0.00 0.65 0.21 0.12 0.66 0.00 0.00 0.00 0.24 0.00 0.24  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.63 0.63 0.63 0.10 0.77 0.77 0.00 0.00 0.00 0.15 0.15  
Volume/Cap: 0.00 1.03 0.34 1.16 0.86 0.00 0.00 0.00 0.00 1.57 0.00  
Delay/Veh: 0.0 35.5 5.2 162.9 3.7 0.0 0.0 0.0 0.0 316.7 0.0 316.7  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 35.5 5.2 162.9 3.7 0.0 0.0 0.0 0.0 316.7 0.0 316.7  
LOS by Move: A D A F A A A A A F A  
HCM2kAvgQ: 0 40 2 10 3 0 0 0 0 32 0 32

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4cLevel of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1264 Lake Merced / Gonzalez

Cycle (sec): 100 Critical Vol./Cap.(X): 1.032  
Loss Time (sec): 12 Average Delay (sec/veh): 52.4  
Optimal Cycle: 180 Level Of Service: D

Street Name: Lake Merced Gonzalez

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Split Phase Split Phase  
Rights: Include Include Include Include Include  
Min. Green: 41 41 11 59 59 0 0 0 20 20 20  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 1 0 1 0 0

Volume Module:

Base Vol: 0 1827 65 8 1751 0 0 0 0 53 0 9  
Growth Adj: 1.88 1.12 1.16 1.19 1.18 1.91 1.16 1.20 1.19 1.91 2.64 1.88  
Initial Bse: 0 2046 75 10 2066 0 0 0 0 101 0 17  
Added Vol: 0 475 449 64 362 0 0 0 0 320 0 46  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2521 524 74 2428 0 0 0 0 421 0 63  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2573 535 75 2478 0 0 0 0 430 0 64  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2573 535 75 2478 0 0 0 0 430 0 64  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2573 535 75 2478 0 0 0 0 430 0 64

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.83 0.93 0.93 1.00 1.00 1.00 1.00 0.92 1.00 0.92  
Lanes: 0.00 2.00 1.00 1.00 2.00 0.00 0.00 0.00 0.00 1.77 0.00 0.23  
Final Sat.: 0 3538 1583 1769 3538 0 0 0 0 3097 0 403

Capacity Analysis Module:

Vol/Sat: 0.00 0.73 0.34 0.04 0.70 0.00 0.00 0.00 0.00 0.14 0.00 0.16  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.63 0.63 0.63 0.10 0.77 0.77 0.00 0.00 0.00 0.15 0.15  
Volume/Cap: 0.00 1.15 0.54 0.42 0.91 0.00 0.00 0.00 0.00 0.93 0.00 1.06  
Delay/Veh: 0.0 93.5 12.4 49.6 14.6 0.0 0.0 0.0 0.0 66.2 0.0 102.1  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 93.5 12.4 49.6 14.6 0.0 0.0 0.0 0.0 66.2 0.0 102.1  
LOS by Move: A F B D B A A A A E A F  
HCM2kAvq: 0 61 8 2 33 0 0 0 0 11 0 15

Note: Queue reported is the number of cars per lane.

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

19th Ave CS  
Tier 4cLevel of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1270 Lake Merced / Brotherhood

Cycle (sec): 110 Critical Vol./Cap.(X): 2.199  
Loss Time (sec): 15 Average Delay (sec/veh): 186.0  
Optimal Cycle: 180 Level Of Service: F

Street Name: Lake Merced Brotherhood

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Split Phase Split Phase  
Rights: Include Include Include Include Include  
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0  
Y+R: 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0  
Lanes: 0 0 2 0 1 2 0 1 0 0 0 0 1 0 0 0 2

Volume Module:

Base Vol: 0 504 195 1342 517 0 0 0 0 267 0 1323  
Growth Adj: 1.71 1.12 1.14 1.17 1.18 1.74 1.14 1.16 1.17 1.74 2.31 1.71  
Initial Bse: 0 562 222 1572 609 0 0 0 0 465 0 2264  
Added Vol: 0 339 -26 432 250 0 0 0 0 -13 0 585  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 901 196 2004 859 0 0 0 0 452 0 2849  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 920 200 2045 0 0 0 0 0 462 0 2907  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 920 200 2045 0 0 0 0 0 462 0 2907  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 920 200 2045 0 0 0 0 0 462 0 2907

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.83 0.90 1.00 1.00 1.00 1.00 1.00 0.93 1.00 0.73  
Lanes: 0.00 2.00 1.00 2.00 1.00 0.00 0.00 0.00 0.00 1.00 0.00 2.00  
Final Sat.: 0 3538 1583 3432 1900 0 0 0 0 1769 0 2786

Capacity Analysis Module:

Vol/Sat: 0.00 0.26 0.13 0.60 0.00 0.00 0.00 0.00 0.00 0.26 0.00 1.04  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.16 0.16 0.43 0.48 0.69 0.69 0.00 0.00 0.00 0.22 0.22 0.75  
Volume/Cap: 0.00 1.59 0.30 1.24 0.00 0.00 0.00 0.00 0.00 1.20 0.00 1.40  
Delay/Veh: 0.0 319 18.1 134.5 0.0 0.0 0.0 0.0 0.0 153.7 0.0 196.9  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 319 18.1 134.5 0.0 0.0 0.0 0.0 0.0 153.7 0.0 196.9  
LOS by Move: A F B F A A A A A F A F  
HCM2kAvq: 0 40 4 58 0 0 0 0 0 28 0 113

Note: Queue reported is the number of cars per lane.

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

Tier 4C Conditions  
Weekend Midday Peak Hour



19th Ave CS

Tier 4c

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1030 Junipero Serra / Sloot / West Portal / St. Francis

Cycle (sec): 105 Critical Vol./Cap.(X): 1.183  
Loss Time (sec): 16 Average Delay (sec/veh): 181.9  
Optimal Cycle: 180 Level of Service: FStreet Name: Junipero Serra / West Portal Sloot / St. Francis  
Approach: North Bound South Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - RControl: Protected Permitted Split Phase  
Rights: Include Ignore Include  
Min. Green: 16 53 53 32 32 32 15 15 15 20 20 20  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 3 0 1 1 0 0 0 2 1 0 3 0 1 0 1 0 1 0Volume Module:  
Base Vol: 1575 1246 23 0 787 272 895 346 371 14 293 26  
Growth Adj: 1.13 1.12 1.10 1.13 1.16 1.10 1.08 1.13 1.16 1.15 1.13  
Initial Bse: 1781 1390 25 0 927 316 984 375 420 16 336 29  
Added Vol: 92 212 0 0 261 0 2 0 88 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 1873 1602 25 0 1188 316 986 375 508 16 336 29  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 1912 1634 26 0 1213 323 1006 382 0 17 343 30  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 1912 1634 26 0 1213 323 1006 382 0 17 343 30  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 1912 1634 26 0 1213 323 1006 382 0 17 343 30Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.89 0.92 0.92 1.00 0.87 0.87 0.89 0.97 1.00 0.92 0.92 0.92  
Lanes: 3.00 1.97 0.03 0.00 2.37 0.63 3.00 1.00 1.00 0.09 1.76 0.15  
Final Sat: 5096 3441 54 0 3929 1046 5096 1843 1900 149 3071 269Capacity Analysis Module:  
Vol/Sat: 0.38 0.47 0.47 0.00 0.31 0.31 0.20 0.21 0.00 0.11 0.11 0.11  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.21 0.51 0.51 0.00 0.30 0.30 0.14 0.14 0.00 0.19 0.19 0.19  
Volume/Cap: 1.79 0.92 0.92 0.00 1.01 1.01 1.38 1.45 0.00 0.59 0.59 0.59  
Delay/Veh: 401.1 27.0 27.0 0.0 62.1 62.1 225.1 268 0.0 42.5 42.5 42.5  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 401.1 27.0 27.0 0.0 62.1 62.1 225.1 268 0.0 42.5 42.5 42.5  
LOS by Move: F C C A E F A D D D  
HCM2kAvgQ: 56 25 25 0 25 25 25 29 0 7 7 7

Note: Queue reported is the number of cars per lane.

Trafflix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

19th Ave CS

Tier 4c

Level of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1070 Junipero Serra / 19th

Cycle (sec): 110 Critical Vol./Cap.(X): 1.468  
Loss Time (sec): 17 Average Delay (sec/veh): 170.2  
Optimal Cycle: 180 Level of Service: FStreet Name: Junipero Serra 19th  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - RControl: Split Phase Split Phase Split Phase Permitted  
Rights: Ignore Ignore Ovl Include  
Min. Green: 54 54 54 20 20 20 9 9 9 9 9 9  
Y+R: 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0  
Lanes: 3 0 1 1 0 0 0 3 1 0 0 0 1 0 4 0 0 0 1 0Volume Module:  
Base Vol: 2245 1828 70 0 1917 12 0 85 4216 0 76 36  
Growth Adj: 1.09 1.12 1.06 1.09 1.18 1.12 1.06 1.01 1.09 1.12 1.06 1.09  
Initial Bse: 2442 2039 74 0 2259 13 0 86 4610 0 81 39  
Added Vol: 255 25 1 0 31 0 0 41 282 0 8 28  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 2697 2064 75 0 2290 13 0 127 4892 0 89 67  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 2752 2106 0 0 2337 0 0 129 4992 0 90 69  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 2752 2106 0 0 2337 0 0 129 4992 0 90 69  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 2752 2106 0 0 2337 0 0 129 4992 0 90 69Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.90 0.93 0.95 1.00 0.89 0.91 1.00 0.98 0.73 1.00 0.92 0.92  
Lanes: 3.00 2.00 0.00 0.00 4.00 0.00 0.00 1.00 4.00 0.00 0.57 0.43  
Final Sat: 5147 3538 0 0 6778 0 0 1862 5571 0 998 756Capacity Analysis Module:  
Vol/Sat: 0.53 0.60 0.00 0.00 0.34 0.00 0.00 0.07 0.90 0.00 0.09 0.09  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.52 0.52 0.52 0.18 0.18 0.18 0.09 0.09 0.68 0.09 0.09 0.09  
Volume/Cap: 1.02 1.14 0.00 0.00 1.88 0.00 0.00 0.77 1.32 0.00 1.01 1.01  
Delay/Veh: 42.1 88.2 0.0 0.0 44.4 0.0 0.0 77.4 150.8 0.0 123 123.4  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 42.1 88.2 0.0 0.0 44.4 0.0 0.0 77.4 150.8 0.0 123 123.4  
LOS by Move: D F A A F A E F A F A F  
HCM2kAvgQ: 38 55 0 0 58 0 0 6 90 0 9 9

Note: Queue reported is the number of cars per lane.

Trafflix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES



19th Ave CS

Tier 4c

Level Of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1150 19th / Buckingham

Average Delay (sec/veh): 3.1 Worst Case Level Of Service: F [ 95.3 ]

Street Name: North Bound South Bound East Bound West Bound

Approach: L - T - R L - T - R L - T - R L - T - R

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign

Right: Include Include Include Include

Lanes: 0 0 3 0 0 0 3 0 1 0 0 0 1 0 0 0 0

Volume Module:

Base Vol: 0 2149 0 0 2446 40 0 0 154 0 0 0

Growth Adj: 1.04 1.12 1.07 1.10 1.18 1.07 1.02 1.10 1.07 1.00 1.04

Initial Bse: 0 2397 0 0 2883 43 0 0 169 0 0 0

Added Vol: 0 235 0 0 299 26 0 0 28 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 2632 0 0 3182 69 0 0 197 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 2685 0 0 3247 70 0 0 201 0 0 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

FinalVolume: 0 2685 0 0 3247 70 0 0 201 0 0 0

Critical Gap Module:

Critical Gap: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 6.9 xxxxxx xxxxxx xxxxxx

FollowUpTime: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 3.3 xxxxxx xxxxxx xxxxxx

Capacity Module:

Conflict Vol: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 1082 xxxxxx xxxxxx xxxxxx

Potent Cap: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 213 xxxxxx xxxxxx xxxxxx

Move Cap: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 213 xxxxxx xxxxxx xxxxxx

Volume/Cap: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 0.95 xxxxxx xxxxxx xxxxxx

Level Of Service Module:

2Way95thQ: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 8.0 xxxxxx xxxxxx xxxxxx

Control Del: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx 95.3 xxxxxx xxxxxx xxxxxx

LOS by Move: LT - LTR - RT LT - LTR - RT LT - LTR - RT

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx

SharedQueue: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx

Shrd ConDel: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx

Shared LOS: \*

ApproachDel: xxxxxx xxxxxx xxxxxx 95.3 xxxxxx

ApproachLOS: \*

Note: Queue reported is the number of cars per lane.

Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

19th Ave CS

Tier 4c

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1160 19th / Holloway

Cycle (sec): 120 Critical Vol./Cap. (X): 0.949

Loss time (sec): 32 Average Delay (sec/veh): 56.8

Optimal Cycle: 173 Level Of Service: E

Street Name: North Bound South Bound East Bound West Bound

Approach: L - T - R L - T - R L - T - R L - T - R

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted

Right: Include Include Include Include

Min. Green: 0 59 59 0 61 32 32 32

Y+R: 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0

Lanes: 0 0 2 1 0 0 0 4 1 0 1 0 1 0 1 0

Volume Module:

Base Vol: 0 2096 105 0 2538 96 61 96

Growth Adj: 1.23 1.12 1.15 1.18 1.18 1.27 1.15 1.19

Initial Bse: 0 2338 121 0 2991 122 70 114

Added Vol: 0 183 31 0 267 60 51 50

PasserByVol: 0 0 0 0 0 0 0 0

Initial Fut: 0 2521 152 0 3258 182 121 164

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 2572 155 0 3325 185 124 168

Reduct Vol: 0 0 0 0 0 0 0 0

Reduced Vol: 0 2572 155 0 3325 185 124 168

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 0 2572 155 0 3325 185 124 168

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 1.00 0.88 0.88 1.00 0.89 0.83 0.64 0.64

Lanes: 0.00 2.83 0.17 0.00 4.00 1.00 0.62 0.84

Final Sat: 0 4751 287 0 6778 1583 750 1016

Capacity Analysis Module:

Vol/Sat: 0.00 0.54 0.54 0.00 0.49 0.12 0.16 0.16

Crit Moves: \* \* \* \* \*

Green/Cycle: 0.00 0.49 0.49 0.00 0.49 0.49 0.26 0.26

Volume/Cap: 0.00 1.11 1.11 0.00 1.01 0.24 0.64 0.64

Delay/Veh: 0.0 80.9 80.9 0.0 42.0 15.3 46.5 46.5

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 80.9 80.9 0.0 42.0 15.3 46.5 46.5

LOS by Move: A F A D B D D D

HCM2kAVGQ: 0 48 48 0 41 3 8 8

Note: Queue reported is the number of cars per lane.

Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES



Tier 4C WE
Mon Jan 4, 2010 09:50:44
Page 35-1

19th Ave CS
Tier 4C

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)
Intersection #1270 Lake Merced / Brotherhood

Cycle (sec): 110
Loss Time (sec): 15
Optimal Cycle: 180
Critical Vol./Cap.(X): 1.906
Average Delay (sec/veh): 119.1
Level Of Service: F

Street Name: Lake Merced
Approach: North Bound
Movement: L - T - R
Control: Permitted
Rights: 0 0 0
Min. Green: 5.0 5.0 5.0
Y+R: 0 0 2
Lanes: 0 2 0

Lake Merced
South Bound
Movement: L - T - R
Control: Protected
Rights: 0 0 0
Min. Green: 5.0 5.0 5.0
Y+R: 2 0 1
Lanes: 0 1 0

Brotherhood
East Bound
Movement: L - T - R
Control: Include
Rights: 0 0 0
Min. Green: 5.0 5.0 5.0
Y+R: 0 0 0
Lanes: 0 0 0

West Bound
Movement: L - T - R
Control: Split Phase
Rights: 0 0 0
Min. Green: 5.0 5.0 5.0
Y+R: 1 0 0
Lanes: 0 0 2

Volume Module:
Base Vol: 0 535 223 1076 498
Growth Adj: 1.71 1.12 1.14 1.17 1.18
Initial Bse: 0 597 254 1260 587
Added Vol: 0 322 0 441 236
PasserByVol: 0 0 0 0 0
Initial Fut: 0 919 254 1701 823
User Adj: 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.98 0.98 0.98 0.98 0.98
PHF Volume: 0 937 259 1736 0
Reduced Vol: 0 0 0 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00
FinalVolume: 0 937 259 1736 0

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900
Adjustment: 1.00 0.93 0.83 0.90 1.00
Lanes: 0.00 2.00 1.00 2.00 1.00
Final Sat.: 0 3538 1583 3432 1900

Capacity Analysis Module:
Vol/Sat: 0.00 0.26 0.16 0.51 0.00
Crit Moves: \*\*\*\*
Green/Cycle: 0.18 0.18 0.45 0.46 0.69
Volume/Cap: 0.00 1.46 0.37 1.09 0.00
Delay/Veh: 0.0 259 17.4 75.9 0.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 259 17.4 75.9 0.0
LOS by Move: A F B E A A A A A F
HCM2kAvgQ: 0 37 5 42 0 0 0 0 19 0 77

Note: Queue reported is the number of cars per lane.

## **APPENDIX F.    MICROSIMULATION ANALYSIS**

---





## AECOM

2101 Webster Street, Ste. 1900, Oakland, CA 94612  
T 510.622.6600 F 510.834.5220 www.aecom.com

## Parkmerced / 19th Avenue Corridor SimTraffic Analysis

### Introduction

A simulation model was developed to evaluate the 19th Avenue corridor utilizing Trafficware's Synchro / SimTraffic 7 software (build 767) for the weekday AM and PM peak periods. This analysis included the following study locations:

- |  |  |
|--|--|
| 1. 19th Avenue / Winston Drive;              | 7. Junipero Serra Boulevard / Holloway Avenue; |
| 2. 19th Avenue / Buckingham Way;             | 8. Junipero Serra Boulevard / Font Boulevard;  |
| 3. 19th Avenue / Holloway Avenue;            | 9. Brotherhood Way / Chumasero Drive;          |
| 4. 19th Avenue / Crespi Drive;               | 10. Brotherhood Way / Lake Merced Boulevard;   |
| 5. 19th Avenue / Junipero Serra Boulevard;   | and,   |
| 6. Junipero Serra Boulevard / Winston Drive; | 11. Brotherhood Way / Arch Street.             |

The simulation consisted of the interaction of many significant modes of transportation within the 19th Avenue corridor including vehicles, transit (bus and LRT), pedestrians, bicycles, and parking.

### Analysis Methodology

The Synchro / SimTraffic model was calibrated based on observed queue lengths and traffic volumes. This calibration methodology is consistent with the procedures recommended by the Federal Highway Administration (FHWA).<sup>(1)</sup> All traffic simulation results were comprised of the average of five (5) simulations with unique random seeding numbers. The traffic simulation period occurred for a single peak hour from 7:00 AM to 9:00 AM and from 4:30 PM to 6:30 PM and all traffic volumes will be inputted in 15 minute count increments. Given the length of the simulated network and the traffic demand, a 30 minute seeding period was utilized required to reach steady state conditions.

Three (3) scenarios were evaluated. These scenarios (and the corresponding 19th Avenue Corridor Study scenario designations) included:

- Existing Conditions;
- 2030 No Project Conditions (Tier 3); and
- 2030 Project Conditions (Tier 4c).

The 2030 No Project Conditions included traffic volume growth (background and planned development) and proposed transportation projects in the area (such as the signalization improvements along 19th Avenue).

In addition to the traffic volume growth and proposed transportation improvements, the 2030 Project Conditions included the following modifications:

---

<sup>(1)</sup> Traffic Analysis Toolbox Volume IV: Guidelines for applying CORSIM Microsimulation Modeling Software. Section 5.0 – Calibration. U.S. Department of Transportation, Federal Highway Administration, 400 Seventh Street S.W. Room 4410 Washington DC 20590, Publication No. FHWA-HOP-07-079, January 2007.

1. Realignment of the M-Ocean View and J-Church light rail lines into Parkmerced, with the proposed new stations;
2. Modifications to the 19th Avenue / Holloway Avenue intersection as required for the new train crossing;
3. Reconfiguration of Crespi Drive and new left-turn access from northbound 19th Avenue;
4. Modifications to the 19th Avenue / Junipero Serra Boulevard intersection as required for the new train crossing; and
5. Reconfiguration of Chumasero Drive and new left-turn access from northbound Junipero Serra Boulevard.

### **Corridor Study Adjustment Factors**

The Synchro / SimTraffic model was utilized to optimize the transportation network. Network characteristics such as signal timing, signal coordination, and LRT priority were modified to accurately model the interactions and minimize delays for all modes of transportation. Based on the optimized Synchro / SimTraffic network, series of adjustment factors were derived and applied to the TRAFFIX analysis being conducted for the 19th Avenue Corridor Study. These adjustments included the following factors:

- Saturation flow rates;
- Lane utilization factors;
- Vehicle arrival type;
- Transit vehicle stops per hour;
- Left-turn and right-turn permissions;
- Signal timing (phases and green time per phase);
- Green to capacity (g/C) ratio; and,
- User saturation adjustment.

### **Evaluation of Results**

The Synchro / SimTraffic models were utilized to evaluate and compare network operations of the analysis scenarios. The intersection operations for the three (3) analysis scenarios based on the traffic simulation are shown in **Table 1**.

Intersection operations would improve on 19th Avenue. In addition, the travel time on 19th Avenue between the Winston Drive and Chumasero Drive intersections would decrease and the traffic volume served would increase. The intersection cycle lengths throughout the 19th Avenue corridor would be increased to 120 seconds and 130 seconds during the weekday AM and PM peak periods, respectively, to account for the LRT signal phases.

At the 19th Avenue / Holloway Avenue intersection, the LRT signal phase would be actuated and only called upon the arrival of a LRT. The northbound through movement phase would operate concurrently with the LRT phase. In instances where the LRT was not present, the remainder of the signal cycle length (26 seconds) would be allotted to the northbound and southbound approaches.

At the 19th Avenue / Junipero Serra Boulevard intersection, the LRT signal phase would be actuated and only called upon the arrival of a LRT. The westbound through movement phase would operate concurrently with the LRT phase. In instances where the LRT was not present, the remainder of the signal cycle length (26 seconds) would be allotted to the northbound approach and the eastbound right movement.

**Table 1: Intersection Operations – Synchro / SimTraffic Simulation**

Intersection		Peak Hour	Existing Conditions		No Project Conditions		Project Conditions	
			LOS	Delay	LOS	Delay	LOS	Delay
1	19th Av / Winston Dr	AM	F	>80.0	F	>80.0	F	>80.0
		PM	F	>80.0	F	>80.0	F	>80.0
2	19th Av / Buckingham Wy	AM	A	4.5	A	5.1	A	5.1
		PM	A	7.3	D	28.5	D	28.5
3	19th Av / Holloway Av	AM	B	15.4	B	13.9	B	15.5
		PM	B	15.5	D	44.2	C	21.1
4	19th Av / Crespi Dr	AM	B	12.5	A	6.3	B	13.4
		PM	A	9.6	C	26.7	B	13.8
5	Junipero Serra Bl / Winston Dr	AM	B	16.6	D	37.2	D	37.2
		PM	C	26.7	F	>80.0	F	>80.0
6	Junipero Serra Bl / Holloway Av	AM	C	27.9	F	>80.0	F	>80.0
		PM	C	27.8	F	>80.0	F	>80.0
7	19th Av / Junipero Serra Bl	AM	E	<b>55.2</b>	F	>80.0	C	29.8
		PM	E	<b>71.8</b>	F	>80.0	C	25.1
8	Junipero Serra Bl / Font Bl	AM	A	7.5	B	10.3	B	10.2
		PM	A	7.7	A	8.1	B	11.8
9	Brotherhood Wy / Lake Merced Bl	AM	B	16.2	F	>80.0	F	>80.0
		PM	F	>80.0	F	>80.0	F	>80.0
10	Brotherhood Wy / Chumasero Dr	AM	C	23.1	E	<b>68.3</b>	B	18.7
		PM	B	13.1	E	<b>55.1</b>	A	10.0
11	Brotherhood Wy / Arch St	AM	B	10.8	B	14.1	B	14.1
		PM	A	8.7	A	7.5	A	7.5
12	Brotherhood Wy / Thomas More Wy	AM	-	-	-	-	A	8.8
		PM	-	-	-	-	F	>80.0

Source: AECOM – December 2009

Notes:

- Weekday AM peak period = 7:00 AM to 9:00 AM; Weekday PM peak period = 4:30 PM to 6:30 PM.
- Delay in terms of seconds per vehicle.
- **Bold** denotes intersection operating at LOS E or worse.



It should be noted that an evaluation was conducted to determine the optimal signal phasing routine with and without the presence of the LRT. Given the significance of progression throughout the corridor, pedestrian crossing time constraints, LRT arrival rate, and phase consistency, allotting a specific phase for the LRT crossing was determined to be collectively optimal for all modes of transportation.

## **Conclusions**

With the implementation of the transportation modifications proposed in the 2030 Project Conditions, the operations throughout the network would improve. In addition to intersection operations, the travel time on 19th Avenue between the Winston Drive and Chumasero Drive intersections would decrease and the traffic volume served would increase.

The intersection cycle lengths throughout the 19th Avenue corridor would be increased to 120 seconds and 130 seconds during the weekday AM and PM peak periods, respectively, to account for the LRT signal phases.

Allotting a specific phase for the LRT crossing was determined to be collectively optimal for all modes of transportation given the significance of progression throughout the corridor, pedestrian crossing time constraints, LRT arrival rate, and phase consistency,

## **APPENDIX G. TRANSIT SCREENLINE CALCULATIONS**

---







AM Peak Hour Ridership

Transit Line	Direction	Tier 3 (2030 Baseline + Project + Public Improvements)					Tier 4A		Non-Parkmerced					Tier 4B		Tier 4C					
		TEP		Park- merced	Non-Parkmerced		Rid.	TEP		Park- merced	Non-Parkmerced		Rid.	Rid.	Rid.						
		Adj.	Baseline		800 Font Brother- hood	Aiden Wood		77-111 Canyon	Stones- town		Balboa Park	Adj.				Baseline	800 Font Brother- hood	Aiden Wood	77-111 Canyon	Stones- town	Balboa Park
North Screenline	Northbound		117			24	3	144		117			24	3	144	144	144				
	Southbound		85			25	6	115		85			49	6	115	115	115				
	Northbound	-19	3	8	6	2	10	3	18	3	8	6	2	10	3	318	318				
	Southbound	-16	2	7	4	7	12	307	2	4	1	1	7	48	12	383	383				
	Northbound	78	199	13	4	1	2	6	30	3	2	0	6	30	3	257	257				
	Southbound	16	132	6	2	0	1	4	31	7	2	0	1	4	31	7	183	183			
	Northbound	232	2	4	7	30	4	278	2	232	6	4	7	30	4	278	278				
	Southbound	218	2	4	5	31	8	264	2	218	6	2	5	31	8	264	264				
	Screenline Subtotal		766	16	18	8	4	24	130	16	766	16	18	8	4	24	130	16	888	888	945
Northeast Screenline	Northbound		1,118	120	7	5	13	37	8	1,320	120	7	5	13	37	8	1,320	1,320			
	Southbound		472	35	6	2	9	38	16	581	35	6	2	9	38	16	581	581	581	581	
	Northbound		1,118	120	12	7	5	13	37	8	1,320	12	7	5	13	37	8	1,320	1,320	1,320	1,320
	Southbound		472	36	6	2	9	38	16	581	36	6	2	9	38	16	581	581	581	581	
East Screenline	Eastbound	-208								208	208	3	5	1	6	15	2	0	239	239	
	Westbound	-293								283	283	1	1	0	4	15	5	3	312	312	
	Eastbound	-148	146	1	4	7	1	3	162	146	1	4	7	1	3	162	162	162	162		
	Westbound	-188	128	1	4	7	1	3	213	188	1	4	7	1	3	213	213	213	213		
Screenline Subtotal	Eastbound	-354	146	1	4	7	1	3	162	354	2	5	1	8	22	3	3	403	403		
	Westbound	-482	138	1	3	8	2	2	213	482	2	1	0	8	23	7	5	526	526		
	Northbound	158	442	8	1	1	12	28	6	459	442	8	1	1	12	28	6	488	488	488	488
	Southbound	21	101	18	4	3	18	27	3	174	101	18	4	3	18	27	3	174	174	174	174
South Screenline	Northbound																				
	Southbound																				
	Northbound	-158																			
	Southbound	-21																			
Screenline Subtotal	Northbound	442		8	1	1	12	28	6	459	442	8	1	1	12	28	6	488	488	488	488
	Southbound	-101		18	4	3	18	27	3	174	101	18	4	3	18	27	3	174	174	174	174
	Local																				
	17 Parkmerced																				
Screenline Subtotal	Northbound	61								61	61						61	61	61	61	
	Southbound	21								21	21						21	21	21	21	
Other	J Church	208	208	3	5	1	6	15	2	238	-208						239	239	239	239	
	88 Mission BART Shuttle	283	283	1	1	0	4	15	5	312	-283						312	312	312	312	
	Parkmerced BART Shuttle		116							116	116						116	116	116	116	
	SFSU Shuttle		37							37	37						37	37	37	37	
	From BART					35											35	35	35	35	
	From BART					37											37	37	37	37	
	BART (north of site)	112	10	3	1	12	21	3	58	221	112	10	3	1	12	21	3	58	221	221	221
	Southbound	32	5	1	0	8	21	6	9	83	32	5	1	0	8	21	6	9	83	83	83
	BART (south of site)	3	8	1	3	8	41	3	11	78	3	8	1	3	8	41	3	11	78	78	78
	28L 19th Avenue Limited	146	146	1	1	0	7	1	0	155	146	1	1	0	7	1	0	155	155	155	155
28L 19th Avenue Limited (Balboa Park extension)	198	198	1	1	0	8	2	3	212	198	1	1	0	8	2	3	212	212	212	212	

AM Peak Hour Capacity

Transit Line		Direction	Existing (2007)				Tier 1		Tier 2		Tier 3			
			Vehicle Type	Runs	Capacity	Util.	Util.	Util.	Vehicle Type	Runs	Capacity	Util.		
North Screenline														
18 46th Avenue	Northbound	Diesel Bus 40'	4	216	56%	54%	68%	Diesel Bus 40'	4	216	67%			
	Southbound	Diesel Bus 40'	4	216	35%	39%	55%	Diesel Bus 40'	4	216	53%			
28 19th Avenue	Northbound	Diesel Bus 40'	7	378	77%	84%	108%	Diesel Bus 40'	6	432	74%			
	Southbound	Diesel Bus 40'	9	486	60%	67%	83%	Diesel Bus 40'	9	486	78%			
28L 19th Avenue Limited	Northbound	Diesel Bus 40'	4	216	51%	55%	75%	Diesel Bus 40'	6	324	78%			
	Southbound	Diesel Bus 40'	5	270	39%	43%	58%	Diesel Bus 40'	6	324	57%			
29 Sunset	Northbound	Diesel Bus 40'	6	324	65%	69%	95%	Diesel Bus 40'	6	324	82%			
	Southbound	Diesel Bus 40'	4	216	84%	86%	111%	Diesel Bus 40'	6	324	92%			
Screenline Subtotal				1,134	58%	62%	86%			1,266	77%			
Northeast Screenline														
M Ocean View	Northbound	Metro Streetcar (2-car)	7	1,414	73%	79%	83%	Metro Streetcar (2-car)	6	1,212	109%			
	Southbound	Metro Streetcar (2-car)	7	1,414	26%	33%	41%	Metro Streetcar (2-car)	6	1,212	48%			
Screenline Subtotal				1,414	26%	33%	41%			1,212	48%			
East Screenline														
M Ocean View	Eastbound	Metro Streetcar (2-car)	7	1,414	12%	15%	17%	Metro Streetcar (2-car)	0					
	Westbound	Metro Streetcar (2-car)	7	1,414	16%	20%	22%	Metro Streetcar (2-car)	0					
29 Sunset	Eastbound	Diesel Bus 40'	6	324	95%	122%	131%	Diesel Bus 40'	6	324	50%			
	Westbound	Diesel Bus 40'	6	324	23%	26%	32%	Diesel Bus 40'	6	324	50%			
Screenline Subtotal				1,738	32%	39%	42%			324	88%			
South Screenline														
28 19th Avenue	Northbound	Diesel Bus 40'	7	378	72%	75%	86%	Diesel Bus 40'	6	432	116%			
	Southbound	Diesel Bus 40'	7	378	29%	33%	35%	Diesel Bus 40'	6	432	40%			
28L 19th Avenue Limited	Northbound	Diesel Bus 40'	5	270	65%	58%	69%	Diesel Bus 40'	6	324	97%			
	Southbound	Diesel Bus 40'	5	270	7%	8%	17%	Diesel Bus 40'	6	324	23%			
Screenline Subtotal				848	15%	16%	28%			756	23%			
Local														
17 Parkmerced	Northbound	Diesel Bus 30'	3	114	51%	53%	58%	Diesel Bus 30'	3	114	53%			
	Southbound	Diesel Bus 30'	3	114	18%	18%	18%	Diesel Bus 30'	3	114	18%			
Screenline Subtotal				114	18%	18%	18%			114	18%			
Other														
J Church	Northbound							Metro Streetcar (1-car)	9	909	26%			
	Southbound							Metro Streetcar (1-car)	6	909	34%			
88 Mission BART Shuttle	To Balboa Park	Diesel Bus 40'	7	378	67%			Diesel Bus 40'	0					
	From BART		4	120										
Parkmerced BART Shuttle	To BART		4	120										
	From BART		4	120										
SFSU Shuttle	Northbound													
	Southbound													
BART (north of site)	Northbound													
	Southbound													
BART (south of site)	Northbound													
	Southbound													
28L 19th Avenue Limited (Balboa Park extension)	Eastbound							Diesel Bus 40'	6	324	48%			
	Westbound							Diesel Bus 40'	6	324	65%			



AM Peak Hour Capacity

Transit Line	Direction	Tier 4A	Tier 4B			Tier 4C			
		Vehicle Type	Runs	Capacity	Util.	Vehicle Type	Runs	Capacity	Util.
North Screenline									
18 46th Avenue	Northbound	Diesel Bus 40'	4	216	67%	Diesel Bus 40'	4	216	67%
	Southbound	Diesel Bus 40'	4	216	53%	Diesel Bus 40'	4	216	53%
28 19th Avenue	Northbound	Diesel Bus 40'	8	432	74%	Diesel Bus 40'	6	432	74%
	Southbound	Diesel Bus 40'	8	486	79%	Diesel Bus 40'	9	486	79%
28L 19th Avenue Limited	Northbound	Diesel Bus 40'	6	324	79%	Diesel Bus 40'	6	324	79%
	Southbound	Diesel Bus 40'	6	324	57%	Diesel Bus 40'	6	324	57%
29 Sunset	Northbound	Diesel Bus 40'	6	324	86%	Diesel Bus 40'	6	324	86%
	Southbound	Diesel Bus 40'	6	324	82%	Diesel Bus 40'	6	324	82%
Screenline Subtotal				1,286	77%			1,286	0%
				1,350	70%			1,350	0%
Northeast Screenline									
M Ocean View	Northbound	Metro Streetcar (2-car)	6	1,212	108%	Metro Streetcar (2-car)	6	1,212	108%
	Southbound	Metro Streetcar (2-car)	6	1,212	48%	Metro Streetcar (2-car)	6	1,212	48%
Screenline Subtotal				1,212	108%			1,212	0%
				1,212	48%			1,212	0%
East Screenline									
M Ocean View	Eastbound	Metro Streetcar (2-car)	6	1,212	20%	Metro Streetcar (2-car)	3	608	38%
	Westbound	Metro Streetcar (2-car)	6	1,212	25%	Metro Streetcar (2-car)	3	608	52%
29 Sunset	Eastbound	Diesel Bus 40'	6	324	50%	Diesel Bus 40'	6	324	50%
	Westbound	Diesel Bus 40'	6	324	66%	Diesel Bus 40'	6	324	66%
Screenline Subtotal				1,538	26%			830	0%
				1,538	34%			830	0%
South Screenline									
28 18th Avenue	Northbound	Diesel Bus 40'	8	432	116%	Diesel Bus 40'	8	432	116%
	Southbound	Diesel Bus 40'	8	432	40%	Diesel Bus 40'	8	432	40%
28L 19th Avenue Limited	Northbound	Diesel Bus 40'	6	324	50%	Diesel Bus 40'	6	324	50%
	Southbound	Diesel Bus 40'	6	324	66%	Diesel Bus 40'	6	324	66%
Screenline Subtotal				756	68%			756	0%
				756	23%			756	0%
Local									
17 Parkmerced	Northbound	Diesel Bus 30'	3	114	53%	Diesel Bus 30'	3	114	53%
	Southbound	Diesel Bus 30'	3	114	18%	Diesel Bus 30'	3	114	18%
Screenline Subtotal				114	53%			114	0%
				114	18%			114	0%
Other									
J Church	Northbound				26%				
	Southbound				34%				
88 Mission BART Shuttle	To Balboa Park	Diesel Bus 40'	0			Diesel Bus 40'	0		
	From BART		4	120	97%		4	120	87%
Parkmerced BART Shuttle	To BART		4	120	31%		4	120	31%
	From BART								
SFSU Shuttle	To BART								
	From BART								
BART (north of site)	Northbound								
	Southbound								
BART (south of site)	Northbound								
	Southbound								
28L 18th Avenue Limited (Balboa Park extension)	Eastbound	Diesel Bus 40'	6	324	48%	Diesel Bus 40'	6	324	48%
	Westbound	Diesel Bus 40'	6	324	65%	Diesel Bus 40'	6	324	65%

**PM Peak Hour Ridership**

[illegible]

PM Peak Hour Ridership

Transit Line	Direction	Tier 3 (2030 Baseline + Project + Public Improvements)										Tier 4A			Tier 4B			Tier 4C		
		TEP		Park-merced		Non-Parkmerced		800		77-111		Non-Parkmerced		Rid.	TEP		Rid.	Non-Parkmerced		Rid.
		Adj.	Baseline	merced	merced	Adj.	Baseline	700 Font	Brother-wood	Arden Wood	77-111 Cambon	SFSU	Stones-town		Balboa Park	Stones-town		Balboa Park		
North Screenline																				
18 46th Avenue	Northbound		118					21	9		146			21	8		146			146
	Southbound		120					20	7		147			19	147		147			147
28 19th Avenue	Northbound		-79			4	2	1	7		373			41	18		317			317
	Southbound		236			5	2	10	40	13	373			40	13		373			373
28L 19th Avenue Limited	Northbound		-79			2	0	1	4	26	11			4	26	11	324			324
	Southbound		15			3	1	1	6	26	8			1	6	26	8			188
29 Sunset	Northbound		223			3	5	27	14		223			5	27	14	271			271
	Southbound		288			3	2	7	26	10	331			7	26	10	331			331
Screenline Subtotal			833	28	7	2	2	17	115	52	1,057	833	28	7	115	52	1,057	1,057	1,051	1,051
Northeast Screenline																				
M Ocean View	Northbound		958	115	4	2	2	8	33	22	1,145	958	115	4	2	2	8	33	22	1,145
	Southbound		1,293	180	6	5	3	13	32	16	1,547	1,293	180	6	5	3	13	32	16	1,547
Screenline Subtotal			858	115	4	2	2	8	33	22	1,145	858	115	4	2	2	8	33	22	1,145
East Screenline	Eastbound		-564								564	564	1	1	2	0	4	13	7	3
	Westbound		328								328	328	1	1	2	3	1	5	13	5
28 Sunset	Eastbound		-146			1	1	3	6	4	6	165					6	3	6	155
	Westbound		193								193	193	1	1			4	6	3	213
Screenline Subtotal			-706	148	1	1	3	6	4	8	165	564	703	2	2	0	7	18	11	8
South Screenline	Eastbound		-321			1	1	4	6	3	213	328	521	1	2	3	1	8	19	8
	Westbound		321								213	328	521	1	2	3	1	8	19	8
28 19th Avenue	Northbound		66	204	8	2	2	18	23	7	264	204		8	2	2	18	23	7	264
	Southbound		93	287	6	1	1	13	24	10	342	287		6	1	1	13	24	10	342
28L 19th Avenue Limited	Northbound		-66								264									
	Southbound		-93								342									
Screenline Subtotal			204	287	8	2	2	18	23	7	264	204		8	2	2	18	23	7	264
Local																				
17 Parkmerced	Northbound		58								58									58
	Southbound		58								58									58
Screenline Subtotal			58								58									58
Other																				
J Church	Northbound		564	2	1	2	0	4	13	7	586	-564								586
	Southbound		328		3	1	5	13	5	2	359	-328								359
88 Mission BART Shuttle	To Lake Merced										114									114
	From BART		114								178									178
Parkmerced BART Shuttle	To BART										31									31
	From BART										31									31
SFSU Shuttle	Northbound		98			3	1	0	8	18	6	183								183
	Southbound		157			2	0	12	18	6	262									262
BART (north of site)	Northbound		21			4	2	6	36	10	7	80								80
	Southbound		16			1	1	0	6	36	10	7								80
BART (south of site)	Northbound		146			1	0	0	6	4	160	146								160
	Southbound		193			1	1	0	6	3	206	193								206
28L 19th Avenue Limited (Balboa Park extension)	Northbound		146			1	0	0	6	4	160	146								160
	Southbound		193			1	1	0	6	3	206	193								206



## PM Peak Hour Capacity

Transit Line		Direction	Existing (2007)			Tier 1			Tier 2			Tier 3		
			Vehicle Type	Runs	Capacity	Util.	Util.	Util.	Vehicle Type	Runs	Capacity	Util.		
North Screenline														
18 46th Avenue	Northbound	Diesel Bus 40'	4	216	45%	54%	70%	Diesel Bus 40'	4	216	67%			
	Southbound	Diesel Bus 40'	4	216	53%	55%	71%	Diesel Bus 40'	4	216	68%			
	Northbound	Diesel Bus 40'	7	378	70%	83%	103%	Diesel Bus 40'	7	378	84%			
	Southbound	Diesel Bus 40'	8	432	67%	70%	84%	Diesel Bus 40'	8	432	86%			
	Northbound	Diesel Bus 40'	6	324	48%	55%	70%	Diesel Bus 40'	6	324	100%			
28L 19th Avenue Limited	Southbound	Diesel Bus 40'	5	270	39%	41%	59%	Diesel Bus 40'	6	324	62%			
	Northbound	Diesel Bus 40'	5	216	87%	103%	125%	Diesel Bus 40'	6	324	84%			
29 Sunset	Southbound	Diesel Bus 40'	5	270	101%	106%	125%	Diesel Bus 40'	6	324	102%			
	Northbound	Diesel Bus 40'	5	270	101%	106%	125%	Diesel Bus 40'	6	324	102%			
Screenline Subtotal				1,134	62%	73%	83%			1,288	81%			
Northeast Screenline														
M Ocean View	Northbound	Metro Streetcar (2-car)	6	1,212	66%	75%	84%	Metro Streetcar (2-car)	6	1,212	94%			
	Southbound	Metro Streetcar (2-car)	7	1,414	84%	91%	105%	Metro Streetcar (2-car)	6	1,212	128%			
Screenline Subtotal				1,212	66%	79%	84%			1,212	84%			
East Screenline														
M Ocean View	Southbound	Metro Streetcar (2-car)	7	1,414	36%	40%	42%	Metro Streetcar (2-car)	0					
	Westbound	Metro Streetcar (2-car)	6	1,212	20%	27%	30%	Metro Streetcar (2-car)	0					
	Eastbound	Diesel Bus 40'	7	270	97%	108%	120%	Diesel Bus 40'	6	324	51%			
	Westbound	Diesel Bus 40'	7	270	97%	108%	120%	Diesel Bus 40'	6	324	51%			
	Screenline Subtotal			1,684	86%	91%	98%			324	51%			
Screenline Subtotal				1,580	33%	45%	49%			324	86%			
South Screenline														
28 18th Avenue	Northbound	Diesel Bus 40'	7	378	35%	38%	45%	Diesel Bus 40'	7	378	70%			
	Southbound	Diesel Bus 40'	6	324	32%	34%	40%	Diesel Bus 40'	6	324	105%			
	Northbound	Diesel Bus 40'	6	324	19%	20%	23%	Diesel Bus 40'	6	324	45%			
	Southbound	Diesel Bus 40'	5	270	33%	35%	42%	Diesel Bus 40'	6	324	45%			
	Screenline Subtotal			702	28%	35%	38%			702	38%			
Screenline Subtotal				584	46%	48%	53%			848	53%			
Local														
17 Parkmerced	Northbound	Diesel Bus 30'	3	114	48%	51%	51%	Diesel Bus 30'	3	114	51%			
	Southbound	Diesel Bus 30'	3	114	49%	52%	52%	Diesel Bus 30'	3	114	52%			
	Screenline Subtotal			114	46%	51%	51%			114	51%			
Screenline Subtotal				114	48%	52%	52%			114	52%			
Other														
J Church	Northbound	Metro Streetcar (1-car)	10	1,010				Metro Streetcar (1-car)	10	1,010	58%			
	Southbound	Metro Streetcar (1-car)	10	1,010				Metro Streetcar (1-car)	10	1,010	38%			
	Screenline Subtotal			2,020						2,020	48%			
88 Mission BART Shuttle	To BART	Diesel Bus 40'	6	324	44%			Diesel Bus 40'	6	180	65%			
Parkmerced BART Shuttle	From BART		6	180					6	180				
SFSU Shuttle	To BART		6	180					6	180				
BART (north of site)	Northbound													
	Southbound													
	Screenline Subtotal													
BART (south of site)	Northbound													
28L 19th Avenue Limited	Southbound													
BART (south of site)	Eastbound	Diesel Bus 40'	6	324	44%			Diesel Bus 40'	6	324	48%			
	Westbound	Diesel Bus 40'	6	324	44%			Diesel Bus 40'	6	324	65%			

PM Peak Hour Capacity

Transit Line	Direction	Tier 4A			Tier 4B			Tier 4C		
		Vehicle Type	Runs	Capacity	Util.	Vehicle Type	Runs	Capacity	Util.	
North Screenline										
18 46th Avenue	Northbound	Diesel Bus 40'	4	216	67%	Diesel Bus 40'	4	216	67%	Diesel Bus 40'
	Southbound	Diesel Bus 40'	4	216	88%	Diesel Bus 40'	4	216	88%	Diesel Bus 40'
28 19th Avenue	Northbound	Diesel Bus 40'	7	378	84%	Diesel Bus 40'	7	378	84%	Diesel Bus 40'
	Southbound	Diesel Bus 40'	8	432	86%	Diesel Bus 40'	8	432	86%	Diesel Bus 40'
28L 19th Avenue Limited	Northbound	Diesel Bus 40'	6	324	100%	Diesel Bus 40'	6	324	100%	Diesel Bus 40'
	Southbound	Diesel Bus 40'	6	324	62%	Diesel Bus 40'	6	324	62%	Diesel Bus 40'
29 Sunset	Northbound	Diesel Bus 40'	6	324	84%	Diesel Bus 40'	6	324	84%	Diesel Bus 40'
	Southbound	Diesel Bus 40'	6	324	102%	Diesel Bus 40'	6	324	102%	Diesel Bus 40'
Screenline Subtotal			12	536	85%		12	536	85%	
Northeast Screenline										
M Ocean View	Northbound	Metro Streetcar (2-car)	6	1,212	84%	Metro Streetcar (2-car)	6	1,212	84%	Metro Streetcar (2-car)
	Southbound	Metro Streetcar (2-car)	6	1,212	128%	Metro Streetcar (2-car)	6	1,212	128%	Metro Streetcar (2-car)
Screenline Subtotal			12	2,424	128%		12	2,424	128%	
East Screenline										
M Ocean View	Eastbound	Metro Streetcar (2-car)	6	1,212	49%	Metro Streetcar (2-car)	3	606	88%	Metro Streetcar (2-car)
	Westbound	Metro Streetcar (2-car)	6	1,212	30%	Metro Streetcar (2-car)	3	606	58%	Metro Streetcar (2-car)
29 Sunset	Eastbound	Diesel Bus 40'	6	324	51%	Diesel Bus 40'	6	324	51%	Diesel Bus 40'
	Westbound	Diesel Bus 40'	6	324	66%	Diesel Bus 40'	6	324	66%	Diesel Bus 40'
Screenline Subtotal			12	2,424	45%		6	630	66%	
South Screenline										
28 18th Avenue	Northbound	Diesel Bus 40'	7	378	70%	Diesel Bus 40'	7	378	70%	Diesel Bus 40'
	Southbound	Diesel Bus 40'	6	324	105%	Diesel Bus 40'	6	324	105%	Diesel Bus 40'
28L 19th Avenue Limited	Northbound	Diesel Bus 40'	6	324	38%	Diesel Bus 40'	6	324	0%	Diesel Bus 40'
	Southbound	Diesel Bus 40'	6	324	53%	Diesel Bus 40'	6	324	0%	Diesel Bus 40'
Screenline Subtotal			13	702	53%		6	630	53%	
Local										
17 Parkmead	Northbound	Diesel Bus 30'	3	114	51%	Diesel Bus 30'	3	114	51%	Diesel Bus 30'
	Southbound	Diesel Bus 30'	3	114	52%	Diesel Bus 30'	3	114	52%	Diesel Bus 30'
Screenline Subtotal			6	228	51%		6	228	51%	
Other										
J Church	Northbound				59%					
	Southbound				35%					
88 Mission BART Shuttle	To Lake Merced	Diesel Bus 40'	0			Diesel Bus 40'	0			
	From BART									
Parkmead BART Shuttle	To BART		6	180	63%		6	180	63%	
	From BART		6	180	85%		6	180	85%	
SFSU Shuttle										
BART (north of site)	Northbound									
	Southbound									
BART (south of site)	Northbound									
	Southbound									
28L 18th Avenue Limited (Balboa Park extension)	Eastbound	Diesel Bus 40'	6	324	48%	Diesel Bus 40'	6	324	48%	Diesel Bus 40'
	Westbound	Diesel Bus 40'	6	324	65%	Diesel Bus 40'	6	324	65%	Diesel Bus 40'

## 700 Font

Project Name	Transit Trips																	
	AM Peak Hour									PM Peak Hour								
	SO-1	SO-2	SO-3	SO-4	EB	NB	SB	Other	Total	SO-1	SO-2	SO-3	SO-4	EB	NB	SB	Other	Total
Inbound	8	3	3	6	1	1	4	0	25	7	3	4	8	1	0	4	0	27
Outbound	17	5	6	11	2	1	8	0	51	5	2	3	6	1	0	3	0	20

Transit Line	Direction	AM Peak Hour									PM Peak Hour								
		SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total

## Tier 2

<b>North Screenline</b>																			
18 46th Avenue	Northbound		1		2					3		0		1					1
	Southbound		0		1					1		1		1					2
28 19th Avenue	Northbound		2		4		1			6		1		2		0			3
	Southbound		1		2		0			3		1		3		0			4
28L 19th Avenue Limited	Northbound		1		2		0			3		0		1		0			1
	Southbound		0		1		0			2		1		1		0			2
29 Sunset	Northbound				4					4				2					2
	Southbound				2					2				3					3
Screenline Subtotal	Northbound		3		11		1			18		2		8		0			7
	Southbound		2		8		1			8		2		8		0			10

<b>Northeast Screenline</b>																			
M Ocean View	Northbound	8	2	2						12	3	1	1						4
	Southbound	4	1	1						6	4	1	1						6
Screenline Subtotal	Northbound	8	2	2						12	3	1	1						4
	Southbound	4	1	1						6	4	1	1						6

<b>East Screenline</b>																			
M Ocean View	Eastbound			2		1		0	3			1		0			0	1	
	Westbound			1		0		0	1			1		0			0	2	
29 Sunset	Eastbound			2		0		0	2			1		0			0	1	
	Westbound			1		0		0	1			1		0			0	1	
Screenline Subtotal	Eastbound			4		1			5			2		0				2	
	Westbound			2		1		1	3			3		0				3	

<b>South Screenline</b>																			
28 19th Avenue	Northbound	3				0		3	0	6	2			0		3	0	5	
	Southbound	5				1		5	0	11	2			0		2	0	4	
28L 19th Avenue Limited	Northbound	2				0		1	0	3	1			0		1	0	3	
	Southbound	3				0		3	0	6	1			0		1	0	2	
Screenline Subtotal	Northbound	4				1		4		9	4			0		4		8	
	Southbound	8				1		8		18	3			0		3		6	

<b>Local</b>																			
17 Parkmerced	Northbound																		
	Southbound																		
Screenline Subtotal	Northbound																		
	Southbound																		

<b>Other</b>																			
J Church	Northbound																		
	Southbound																		
89 Mission BART Shuttle	To Balboa Park																		
Parkmerced BART Shuttle	To BART																		
	From BART																		
SFSU Shuttle	To BART																		
	From BART																		
BART (north of site)	Northbound	8				2		0	10	3				1			0	3	
	Southbound	4				1		0	5	4				1			0	4	
BART (south of site)	Northbound							4	4								4	4	
	Southbound							8	8								3	3	
28L 19th Avenue Limited (Balboa Park extension)	Eastbound																		
	Westbound																		

## Tier 3

<b>North Screenline</b>																			
18 46th Avenue	Northbound																		
	Southbound																		
28 19th Avenue	Northbound		2		5		1			8		1		2		0			4
	Southbound		1		2		0			4		1		3		0			5
28L 19th Avenue Limited	Northbound		1		2		0			4		1		1		0			2
	Southbound		1		1		0			2		1		2		0			3
29 Sunset	Northbound				4					4				2					2
	Southbound				2					2				3					7
Screenline Subtotal	Northbound		3		11		1			18		2		6		0			10
	Southbound		2		6		1			8		2		8		0			10

<b>Northeast Screenline</b>																			
M Ocean View	Northbound	8	2	2						12	3	1	1						4
	Southbound	4	1	1						6	4	1	1						6
Screenline Subtotal	Northbound	8	2	2						12	3	1	1						4
	Southbound	4	1	1						6	4	1	1						6

<b>East Screenline</b>																			
M Ocean View	Eastbound																		
	Westbound																		
29 Sunset	Eastbound			1		0			1			0		0				1	
	Westbound			1		0			1			1		0				1	
Screenline Subtotal	Eastbound			1		0			1			0		0				1	
	Westbound			1		0			1			1		0				1	

<b>South Screenline</b>																			
28 19th Avenue	Northbound	4				1		4	9	4				0		4		8	
	Southbound	8				1		8	18	3				0		3		6	
28L 19th Avenue Limited	Northbound																		
	Southbound																		
Screenline Subtotal	Northbound	4				1		4	9	4				0		4		8	
	Southbound	8				1		8	18	3				0		3		6	

<b>Local</b>																			
17 Parkmerced	Northbound																		
	Southbound																		
Screenline Subtotal	Northbound																		
	Southbound																		

Other									
J Church	Northbound	2	1	3	1	0	1		
	Southbound	1	0	1	1	0	2		
89 Mission BART Shuttle	To Balboa Park								
Parkmerced BART Shuttle	To BART								
	From BART								
SFSU Shuttle	To BART								
	From BART								
BART (north of site)	Northbound	8	2	10	3	1	3		
	Southbound	4	1	5	4	1	4		
BART (south of site)	Northbound		4	4			4		
	Southbound		8	8			3		
28L 19th Avenue Limited	Eastbound	1		1	0		0		
(Balboa Park extension)	Westbound	1		1	1		1		



700 Font

Project Name	Transit Trips																		
	AM Peak Hour									PM Peak Hour									
	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total	
Inbound	8	3	3	6	1	1	4	0	25	7	3	4	8	1	0	4	0	27	
Outbound	17	5	6	11	2	1	8	0	51	5	2	3	6	1	0	3	0	20	

Transit Line	Direction	AM Peak Hour									PM Peak Hour								
		SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total

Tier 4A/C

North Screenline																			
18 48th Avenue	Northbound																		
	Southbound		2		5		1			8		1		2		0			4
28 19th Avenue	Northbound									4		1		3		0			5
	Southbound		1		2		0			4		1		3		0			5
28L 19th Avenue Limited	Northbound									4		1		1		0			2
	Southbound		1		2		0			2		1		2		0			3
29 Sunset	Northbound									4				2					2
	Southbound				4					2				3					3
Screenline Subtotal	Northbound		3		11		1			16		2		6		0			7
	Southbound		2		8		1			8		2		8		0			10

Northeast Screenline																			
M Ocean View	Northbound		8	2	2					12		3	1	1					4
	Southbound		4	1	1					6		4	1	1					6
Screenline Subtotal	Northbound		8	2	2					12		3	1	1					4
	Southbound		4	1	1					6		4	1	1					6

East Screenline																			
M Ocean View	Eastbound				2		1			3			1		0				1
	Westbound				1		0			1			1		0				2
29 Sunset	Eastbound				1		0			1			0		0				1
	Westbound				1		0			1			1		0				1
Screenline Subtotal	Eastbound				3		1			4			1		0				2
	Westbound				2		1			2			2		0				2

South Screenline																			
28 19th Avenue	Northbound		4				1		4	9		4			0		4		8
	Southbound		8				1		8	18		3			0		3		6
28L 19th Avenue Limited	Northbound																		
	Southbound																		
Screenline Subtotal	Northbound		4				1		4	9		4			0		4		8
	Southbound		8				1		8	18		3			0		3		6

Local

17 Parkmerced	Northbound																		
	Southbound																		
Screenline Subtotal	Northbound																		
	Southbound																		

Other

J Church	Northbound																		
	Southbound																		
68 Mission BART Shuttle	To Balboa Park																		
Parkmerced BART Shuttle	To BART																		
	From BART																		
SFSU Shuttle	To BART																		
	From BART																		
BART (north of site)	Northbound		8				2			10		3			1				3
	Southbound		4				1			5		4			1				4
BART (south of site)	Northbound							4		4							4		4
	Southbound							8		8							3		3
28L 19th Avenue Limited (Balboa Park extension)	Eastbound				1					1			0						0
	Westbound				1					1			1						1

## 800 Brotherhood Way

Project Name	Transit Trips																		
	AM Peak Hour									PM Peak Hour									
	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total	
Inbound	1	1	1	1	0	0	0	0	5	4	3	3	3	0	0	0	0	15	
Outbound	5	5	5	5	1	1	1	0	22	2	2	2	2	0	0	0	0	8	

Transit Line	Direction	AM Peak Hour									PM Peak Hour								
		SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total

## Tier 2

North Screenline

[illegible]

**Northeast 5 screenline**

M Ocean View	Northbound	3	2	2	0	0	7	1	1	1	0	0	2
		1	0	1	1	0	2	2	1	2	0	0	5
	Screenline Subtotal	3	2	2	0	0	7	1	1	2	1	0	2
		1	0	1	0	0	2	2	1	2	0	0	5

East Screenline

M Ocean View	Eastbound	5	5	2	2
	Westbound	1	1	3	3
29 Sunset	Eastbound				
	Westbound				
Screenline Subtotal	Eastbound	5	5	2	2
	Westbound	1	1	3	3

South Screenline

28 19th Avenue	Northbound	0	0	0	0	1	1	0	0	0	2
	Southbound	3	0	1	0	4	1	0	0	0	1
28L 19th Avenue Limited	Northbound	0	0	0	0	0	1	0	0	0	1
	Southbound										
Screenline Subtotal	Northbound	1	0	0	0	1	2	0	0	0	2
	Southbound	3	0	1	0	4	1	0	0	0	1

## Local

[illegible]

## Other \_\_\_\_\_

J Church	Northbound Southbound								
88 Mission BART Shuttle	To Balboa Park								
Parkmerced BART Shuttle	To BART From BART								
5FSU Shuttle	To BART From BART								
BART (north of site)	Northbound Southbound	3 1	1 0	0 0	3 1	1 2	0 0	0 0	1 2
BART (south of site)	Northbound Southbound								
28L 19th Avenue Limited (Balboa Park extension)	Eastbound Westbound								

## Tier 3

North Screenline

[illegible]

**Northeast Screenline**

Northwest Screenline		3	2	2	0	7	1	1	1	0	2
M Ocean View	Northbound	1	0	1	0	2	2	1	2	0	5
	Southbound	1	0	1	0	2	2	1	2	0	5
Screenline Subtotal		3	2	2	0	7	1	1	1	0	2
	Northbound	1	0	1	0	2	2	1	2	0	5
	Southbound	1	0	1	0	2	2	1	2	0	5

## East Screenline

M Ocean View		Eastbound					
		Westbound					
29 Sunset		Eastbound					
		Westbound					
Screenline Subtotal		Eastbound					
		Westbound					

South Screenline

South Screenline									
28 19th Avenue	Northbound	1	0	0	1	2	0	0	2
	Southbound	3	0	1	4	1	0	0	1
28L 19th Avenue Limited	Northbound								
	Southbound								
Screenline Subtotal	Northbound	1	0	0	1	2	0	0	2
	Southbound	3	0	1	4	1	0	0	1

[illegible]

17 Parkmerced	Northbound					
	Southbound					
Screenline Subtotal	Northbound					
	Southbound					

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	52
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	----

Other							
J Church	Northbound Southbound	5 1		5 1	2 3		2 3
68 Mission BART Shuttle	To Balboa Park						
Parkmerced BART Shuttle	To BART From BART						
5FSU Shuttle	To BART From BART						
BART (north of site)	Northbound Southbound	3 1	1 0	3 1	1 2	0 0	1 2
BART (south of site)	Northbound Southbound						
28L 19th Avenue Limited (Balboa Park extension)	Eastbound Westbound						

## 800 Brotherhood Way

[illegible]



Arden Wood

Project Name	Transit Trips																		
	AM Peak Hour									PM Peak Hour									
	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Dther	Total	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total	
Inbound	2	1	1	1	0	0	1	0	7	3	2	2	4	0	0	2	0	13	
Outbound	7	2	2	4	1	0	3	0	20	2	1	1	2	0	0	1	0	9	

Transit Line	Direction	AM Peak Hour										PM Peak Hour									
		SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total		

Tier 2

North Screenline

16 46th Avenue	Northbound								
	Southbound								
28 19th Avenue	Northbound	1	1	0	2	0	1	0	1
	Southbound	0	0	0	1	1	1	0	2
28L 19th Avenue Limited	Northbound	0	1	0	1	0	0	0	1
	Southbound	0	0	0	0	0	1	0	1
29 Sunset	Northbound								
	Southbound								
Screenline Subtotal	Northbound	1	2	0	4	1	1	0	2
	Southbound	0	1	0	1	1	2	0	3

**Northeast Screenline**

M Ocean View	Northbound	3	0	1	0	0	S	1	0	0	0	0	2
	Southbound	1	0	0	0	0	2	2	0	1	0	0	3
Screenline Subtotal	Northbound	3	0	1	0	0	S	1	0	0	0	0	2
	Southbound	1	0	0	0	0	2	2	0	1	0	0	3

East Screenline

M Ocean View	Eastbound	1	1	0	0
	Westbound	0	0	1	1
29 Sunset	Eastbound				
	Westbound				
Screenline Subtotal	Eastbound	1	1	0	0
	Westbound	0	0	1	1

South Screenline

2B 19th Avenue	Northbound		1	1		1	1
	Southbound		2	2		1	1
2BL 19th Avenue Limited	Northbound		0	0		1	1
	Southbound		1	1		0	0
Screenline Subtotal	Northbound		1	1		2	2
	Southbound		3	3		1	1

Local	State	Federal
1	2	3
4	5	6
7	8	9
10	11	12
13	14	15
16	17	18
19	20	21
22	23	24
25	26	27
28	29	30
31	32	33
34	35	36
37	38	39
40	41	42
43	44	45
46	47	48
49	50	51
52	53	54
55	56	57
58	59	60
61	62	63
64	65	66
67	68	69
70	71	72
73	74	75
76	77	78
79	80	81
82	83	84
85	86	87
88	89	90
91	92	93
94	95	96
97	98	99
100	101	102
103	104	105
106	107	108
109	110	111
112	113	114
115	116	117
118	119	120
121	122	123
124	125	126
127	128	129
130	131	132
133	134	135
136	137	138
139	140	141
142	143	144
145	146	147
148	149	150
151	152	153
154	155	156
157	158	159
160	161	162
163	164	165
166	167	168
169	170	171
172	173	174
175	176	177
178	179	180
181	182	183
184	185	186
187	188	189
190	191	192
193	194	195
196	197	198
199	200	201
202	203	204
205	206	207
208	209	210
211	212	213
214	215	216
217	218	219
220	221	222
223	224	225
226	227	228
229	230	231
232	233	234
235	236	237
238	239	240
241	242	243
244	245	246
247	248	249
250	251	252
253	254	255
256	257	258
259	260	261
262	263	264
265	266	267
268	269	270
271	272	273
274	275	276
277	278	279
280	281	282
283	284	285
286	287	288
289	290	291
292	293	294
295	296	297
298	299	300
301	302	303
304	305	306
307	308	309
310	311	312
313	314	315
316	317	318
319	320	321
322	323	324
325	326	327
328	329	330
331	332	333
334	335	336
337	338	339
340	341	342
343	344	345
346	347	348
349	350	351
352	353	354
355	356	357
358	359	360
361	362	363
364	365	366
367		

17 Parkmerced	Northbound					
	Southbound					
Screenline Subtotal	Northbound					
	Southbound					

## Other \_\_\_\_\_

[illegible]

Tier 3

North Screenline

[illegible]

**Northeast Screenline**

M Ocean View	Northbound	3	0	1	0	S	1	0	0	0	2
	Southbound	1	0	0	0	2	2	0	1	0	3
Screenline Subtotal	Northbound	3	0	1	0	S	1	0	0	0	2
	Southbound	1	0	0	0	2	2	0	1	0	3

East Screenline

M Ocean View	Eastbound				
	Westbound				
29 Sunset	Eastbound				
	Westbound				
Screenline Subtotal	Eastbound				
	Westbound				

South Screenline

2B 19th Avenue	Northbound	1	1	2	2
	Southbound	3	3	1	1
2BL 19th Avenue Limited	Northbound				
	Southbound				
Screenline Subtotal	Northbound	1	1	2	2
	Southbound	3	3	1	1

## Local

17 Parkmerced	Northbound Southbound						
Screenline Subtotal:	Northbound Southbound						

## Other \_\_\_\_\_

J Church	Northbound	1		1	0	0
	Southbound	0		0	1	1
88 Mission BART Shuttle	To Balboa Park					
Parkmerced BART Shuttle	To BART					
	From BART					
SFSU Shuttle	To BART					
	From BART					
BART (north of site)	Northbound		1	1	0	0
	Southbound		0	0	0	0
BART (south of site)	Northbound	1	1		2	2
	Southbound	3	3		1	1
29L 19th Avenue Limited (Balboa Park extension)	Eastbound					
	Westbound					

## Arden Wood

Project Name		Transit Trips																	
		AM Peak Hour									PM Peak Hour								
Inbound	Outbound	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total
		2	1	1	1	0	0	1	0	7	3	2	2	4	0	0	2	0	13
		7	2	2	4	1	0	3	0	20	2	1	1	2	0	0	1	0	9

Transit Line	Direction	AM Peak Hour									PM Peak Hour								
		SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total

Tier 4A/C

North Screenline

18 48th Avenue	Northbound																		
	Southbound																		
28 19th Avenue	Northbound		1		1		0			2		0		1		0			1
	Southbound		0		0		0			1		1		1		0			2
28L 19th Avenue Limited	Northbound		1		1		0			2				0		0			1
	Southbound		0		0		0			1		1		1		0			1
29 Sunset	Northbound																		
	Southbound																		
Screenline Subtotal	Northbound		1		2		0			4		1		1		0			2
	Southbound		0		1		0			1		1		2		0			3

Northeast Screenline

M Ocean View	Northbound	3	0	1		0				5	1	0	0		0				2
	Southbound	1	0	0		0				2	2	0	1		0				3
Screenline Subtotal	Northbound	3	0	1		0				5	1	0	0		0				2
	Southbound	1	0	0		0				2	2	0	1		0				3

East Screenline

M Ocean View	Eastbound			1						1			0						0
	Westbound			0						0			1						1
29 Sunset	Eastbound																		
	Westbound																		
Screenline Subtotal	Eastbound			1						1			0						0
	Westbound			0						0			1						1

South Screenline

28 19th Avenue	Northbound							1		1							2		2
	Southbound							3		3							1		1
28L 19th Avenue Limited	Northbound																		
	Southbound																		
Screenline Subtotal	Northbound							1		1							2		2
	Southbound							3		3							1		1

Local

17 Parkmerced	Northbound																		
	Southbound																		
Screenline Subtotal	Northbound																		
	Southbound																		

Other

J Church	Northbound																		
	Southbound																		
88 Mission BART Shuttle	To Balboa Park																		
Parkmerced BART Shuttle	To BART																		
	From BART																		
SFSU Shuttle	To BART																		
	From BART																		
BART (north of site)	Northbound					1				1					0				0
	Southbound					0				0					0				0
BART (south of site)	Northbound							1		1							2		2
	Southbound							3		3							1		1
28L 19th Avenue Limited (Balboa Park extension)	Eastbound																		
	Westbound																		

## 77-111 Cambon Drive

Project Name	Transit Trips																	
	AM Peak Hour									PM Peak Hour								
Inbound	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total
Outbound	10	5	7	12	3	1	6	1	43	14	7	10	17	4	1	8	1	62
	14	7	11	18	4	1	9	1	65	10	5	8	13	3	1	6	1	46

Transit Line	Direction	AM Peak Hour									PM Peak Hour								
		SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total

## Tier 2

<b>North Screenline</b>																			
18 46th Avenue	Northbound				3					3				2					2
	Southbound				2					2				3					3
28 19th Avenue	Northbound		2		8		1			9		2		4		0			6
	Southbound		2		4		0			6		2		6		1			9
28L 19th Avenue Limited	Northbound		1		3		0			5		1		2		0			3
	Southbound		1		2		0			3		1		3		0			4
29 Sunset	Northbound		1		6					7		1		4					5
	Southbound		1		4					5		1		6					7
Screenline Subtotal			5		18		1			24		3		13		1			17
			3		12		1			16		5		17		1			23

## Northeast Screenline

M Ocean View	Northbound	7	2	4						13	5	2	3						9
	Southbound	5	2	2						9	7	2	3						13
Screenline Subtotal			7	2	4					13	5	2	3						9
			5	2	2					9	7	2	3						13

## East Screenline

M Ocean View	Eastbound			4		2		1		6			3		1			0	4
	Westbound			2		1		0		4			3		1			1	5
29 Sunset	Eastbound			4		0		0		4			3		0			0	3
	Westbound			2		0		0		3			3		0			0	4
Screenline Subtotal				7		2		1		10			5		1			1	7
				5		1		0		8			7		2			1	9

## South Screenline

28 19th Avenue	Northbound	3				1		4	0	8	4				1		6	0	11
	Southbound	7				1		6	0	14	5				1		4	0	10
28L 19th Avenue Limited	Northbound	2				1		2	0	5	3				1		3	0	6
	Southbound					1		3	0	4					1		2	0	3
Screenline Subtotal			5			1		6	0	12	7				2		8	1	18
			7			2		9	1	18	5				1		6	1	13

## Local

17 Parkmerced	Northbound																		
	Southbound																		
Screenline Subtotal																			

## Other

J Church	Northbound																		
	Southbound																		
88 Mission BART Shuttle	To Balboa Park																		
Parkmerced BART Shuttle	To BART																		
	From BART																		
SFSU Shuttle	To BART																		
	From BART																		
BART (north of site)	Northbound	7				4			1	12	5			3				1	9
	Southbound	5				3			1	8	7			4				1	12
BART (south of site)	Northbound							6		6							8		8
	Southbound							9		9							6		6
28L 19th Avenue Limited (Balboa Park extension)	Eastbound																		
	Westbound																		

## Tier 3

<b>North Screenline</b>																			
18 46th Avenue	Northbound																		
	Southbound																		
28 19th Avenue	Northbound		2		8		1			10		1		6		0			7
	Southbound		1		5		0			7		2		8		1			10
28L 19th Avenue Limited	Northbound		2		4		0			6		1		3		0			4
	Southbound		1		3		0			4		2		4		0			6
29 Sunset	Northbound		1		6					7		1		4					5
	Southbound		1		4					5		1		6					7
Screenline Subtotal			5		18		1			24		3		13		1			17
			3		12		1			16		5		17		1			23

## Northeast Screenline

M Ocean View	Northbound	7	2	4						13	5	2	3						9
	Southbound	5	2	2						9	7	2	3						13
Screenline Subtotal			7	2	4					13	5	2	3						9
			5	2	2					9	7	2	3						13

## East Screenline

M Ocean View	Eastbound																		
	Westbound																		
29 Sunset	Eastbound			4		0		0		4			3		0			0	3
	Westbound			2		0		0		3			3		0			0	4
Screenline Subtotal				4		0		0		4			3		0			0	3
				2		0		0		3			3		0			0	4

## South Screenline

28 19th Avenue	Northbound	5				1		6	0	12	7				2		6	1	16
	Southbound	7				2		9	1	18	5				1		6	1	13
28L 19th Avenue Limited	Northbound																		
	Southbound																		
Screenline Subtotal			5			1		6	0	12	7				2		6	1	18
			7			2		9	1	18	5				1		6	1	13

## Local

17 Parkmerced	Northbound																		
	Southbound																		
Screenline Subtotal																			

## Other

J Church	Northbound			4		2			1	6			3		1			0	4
	Southbound			2		1			0	4			3		1			1	5
88 Mission BART Shuttle	To Balboa Park																		
Parkmerced BART Shuttle	To BART																		
	From BART																		
SFSU Shuttle	To BART																		
	From BART																		
BART (north of site)	Northbound	7				4			1	12	5			3				1	9
	Southbound	5				3			1	8	7			4				1	12
BART (south of site)	Northbound							6		6							6		6
	Southbound							9		9							6		6
28L 19th Avenue Limited (Balboa Park extension)	Eastbound					0		0		0					0			0	0
	Westbound					0		0		0					0			0	0



77-111 Cambon Drive

Project Name	Transit Trips																	
	AM Peak Hour									PM Peak Hour								
	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total
Inbound	10	5	7	12	3	1	6	1	43	14	7	10	17	4	1	8	1	62
Outbound	14	7	11	18	4	1	9	1	65	10	5	8	13	3	1	6	1	46

Transit Line	Direction	AM Peak Hour									PM Peak Hour								
		SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total

**Tier 4A/C**

**North Screenline**

18 48th Avenue	Northbound																		
	Southbound																		
28 19th Avenue	Northbound		2		8		1			10		1		6		0			7
	Southbound		1		5		0			7		2		8		1			10
28L 19th Avenue Limited	Northbound		2		4		0			6		1		3		0			4
	Southbound		1		3		0			4		2		4		0			6
29 Sunset	Northbound		1		6					7		1		6					7
	Southbound		1		4					5		1		4					5
Screenline Subtotal	Northbound		5		18		1			24		3		13		1			17
	Southbound		3		12		1			18		5		17		1			23

**Northeast Screenline**

M Ocean View	Northbound		7	2	4					13		5	2	3					9
	Southbound		5	2	2					9		7	2	3					13
Screenline Subtotal	Northbound		7	2	4					13		5	2	3					9
	Southbound		5	2	2					9		7	2	3					13

**East Screenline**

M Ocean View	Eastbound			4		2		1	6			3		1		0		4
	Westbound			2		1		0	4			3		1		1		5
29 Sunset	Eastbound			4		0		0	4			3		0		0		3
	Westbound			2		0		0	3			3		0		0		4
Screenline Subtotal	Eastbound			7		2		1	9			5		1		0		7
	Westbound			5		1		0	8			7		2		1		9

**South Screenline**

28 19th Avenue	Northbound		5			1		6	0	12		7		2		8	1	18
	Southbound		7			2		9	1	18		5		1		6	1	13
28L 19th Avenue Limited	Northbound																	
	Southbound																	
Screenline Subtotal	Northbound		5			1		6	0	12		7		2		8	1	18
	Southbound		7			2		9	1	18		5		1		6	1	13

**Local**

17 Parkmerced	Northbound																	
	Southbound																	
Screenline Subtotal	Northbound																	
	Southbound																	

**Other**

J Church	Northbound																	
	Southbound																	
88 Mission BART Shuttle	To Balboa Park																	
	From BART																	
Parkmerced BART Shuttle	To BART																	
	From BART																	
SFSU Shuttle	Northbound																	
	Southbound																	
BART (north of site)	Northbound		7			4		1	12		5			3			1	9
	Southbound		5			3		1	8		7			4			1	12
BART (south of site)	Northbound					6			6							8		8
	Southbound					9			9							6		6
28L 19th Avenue Limited (Balboa Park extension)	Eastbound					0		0	0					0			0	0
	Westbound					0		0	0					0			0	0

SFSU

Project Name	Transit Trips																	
	AM Peak Hour									PM Peak Hour								
	SO-1	SO-2	SO-3	SO-4	EB	NB	SB	Other	Total	SO-1	SO-2	SO-3	SO-4	EB	NB	SB	Other	Total
Inbound	16	54	46	94	8	5	43	3	268	13	45	38	78	7	4	36	2	224
Outbound	16	52	44	91	8	5	41	3	259	14	46	39	80	7	5	36	2	228

Transit Line	Direction	AM Peak Hour									PM Peak Hour								
		SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total

Tier 2

18 46th Avenue	Northbound	9	15		24	8	13		21
	Southbound	9	16		25	7	13		20
28 19th Avenue	Northbound	17	30	3	51	15	27	3	45
	Southbound	18	31	4	53	15	26	3	44
28L 19th Avenue Limited	Northbound	9	15		25	8	13	2	22
	Southbound	9	16	2	26	7	13	1	22
29 Sunset	Northbound		30		30		27		27
	Southbound		31		31		26		26
Screenline Subtotal	Northbound	35	91	5	130	30	60	5	115
	Southbound	36	94	5	135	30	78	4	113

Northeast Screenline										
M Ocean View	Northbound	5	17	15		37	5	15	13	33
	Southbound	5	18	15		38	4	15	13	32
Screenline Subtotal	Northbound	5	17	15		37	5	15	13	33
	Southbound	5	18	15		38	4	15	13	32

East Screenline						
M Ocean View	Eastbound	15		15	13	13
	Westbound	15		15	13	
29 Sunset	Eastbound	15		15	13	13
	Westbound	15		15	13	13
Screenline Subtotal	Eastbound	29		29	26	26
	Westbound	30		30	25	25

South Screenline													
28 19th Avenue	Northbound	5		2	14	1	23	4		2	12	1	19
	Southbound	5		2	14	1	22	5		2	12	1	19
28L 19th Avenue Limited	Northbound	3		2	7	1	12	2		1	6	0	10
	Southbound	3		2	7	1	12	2		1	6	0	10
Screenline Subtotal	Northbound	8		4	21	1	35	7		3	18	1	29
	Southbound	8		4	21	1	34	7		3	18	1	30

Local							
17 Parkmerced	Northbound Southbound						
Screenline Subtotal	Northbound Southbound						

[illegible]

Tier 3  
North Carolina

18 46th Avenue	Northbound	9	15		24	8	13		21
	Southbound	9	16		25	7	13		20
26 19th Avenue	Northbound	13	30	3	47	11	27	3	41
	Southbound	13	31	4	48	11	26	3	40
28L 19th Avenue Limited	Northbound	13	15		30	11	13	2	26
	Southbound	13	16	2	31	11	13	1	26
29 Sunset	Northbound		30		30		27		27
	Southbound		31		31		26		26
Screenline Subtotal	Northbound	35	91	5	130	30	80	5	115
	Southbound	36	94	5	135	30	78	4	113

Northeast Screenline										
M Ocean View	Northbound	5	17	15		37	5	15	13	33
	Southbound	5	18	15		38	4	15	13	32
Screenline Subtotal	Northbound	5	17	15		37	5	15	13	33
	Southbound	5	18	15		38	4	15	13	32

East Screenline						
M Ocean View	Eastbound					
	Westbound					
29 Sunset	Eastbound	7	7	6		6
	Westbound	8	8	6		8
Screenline Subtotal	Eastbound	7	7	6		6
	Westbound	8	8	6		8

South Screenline													
28 19th Avenue	Northbound	6		3	17	1	28	5		3	14	1	23
	Southbound	6		3	17	1	27	5		3	15	1	24
28L 19th Avenue Limited	Northbound												
	Southbound												
Screenline Subtotal	Northbound	6		3	17	1	28	5		3	14	1	23
	Southbound	6		3	17	1	27	5		3	15	1	24

Local							
17 Parkmerced	Northbound Southbound						
Screenline Subtotal	Northbound Southbound						

Other													
J Church	Northbound	15					15	13					13
	Southbound	15					15	13					13
68 Mission BART Shuttle	To Balboa Park												
Parkmerced BART Shuttle	To BART												
	From BART												
5FSU Shuttle	To BART	4	5	25	2	35	4	4	22	1	31		
	From BART	4	5	26	2	37	4	4	21	1	31		
BART (north of site)	Northbound	11	8		3	21	9	7		2	18		
	Southbound	10	8		3	21	9	7		2	18		
BART (south of site)	Northbound						43						36
	Southbound						41						36
28L 19th Avenue Limited (Balboa Park extension)	Eastbound	7						7	6				6
	Westbound	8						8	6				6

## SFSU

Project Name		Transit Trips																	
		AM Peak Hour									PM Peak Hour								
		SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total
Inbound	16	54	46	94	8	5	43	3	268	13	45	36	78	7	4	36	2	224	
Outbound	16	52	44	91	8	5	41	3	259	14	46	39	80	7	5	36	2	226	

Transit Line	Direction	AM Peak Hour									PM Peak Hour								
		SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total

Tier 4A/C

North Screenline																			
18 48th Avenue	Northbound		9		15					24		8		13					21
	Southbound		9		16					25		7		13					20
28 19th Avenue	Northbound		13		30		3			47		11		27		3			41
	Southbound		13		31		4			48		11		26		3			40
28L 19th Avenue Limited	Northbound		13		15		2			30		11		13		2			28
	Southbound		13		16		2			31		11		13		1			26
29 Sunset	Northbound				30					30				27					27
	Southbound				31					31				26					26
Screenline Subtotal		Northbound	35		91		5			130		30		60		5			115
		Southbound	36		94		5			135		30		78		4			113
Northeast Screenline																			
M Ocean View	Northbound	5	17	15						37	5	15	13						33
	Southbound	5	18	15						38	4	15	13						32
Screenline Subtotal		Northbound	5	17	15					37	5	15	13						33
		Southbound	5	18	15					38	4	15	13						32
East Screenline																			
M Ocean View	Eastbound			15						15			13						13
	Westbound			15						15			13						13
29 Sunset	Eastbound			7						7			6						6
	Westbound			8						8			6						6
Screenline Subtotal		Eastbound		22						22			19						19
		Westbound		23						23			19						19
South Screenline																			
28 19th Avenue	Northbound	6				3		17	1	28	5				3		14	1	23
	Southbound	6				3		17	1	27	5				3		15	1	24
28L 19th Avenue Limited	Northbound																		
	Southbound																		
Screenline Subtotal		Northbound	6			3		17	1	28	5				3		14	1	23
		Southbound	6			3		17	1	27	5				3		15	1	24
Local																			
17 Parkmerced	Northbound																		
	Southbound																		
Screenline Subtotal		Northbound																	
		Southbound																	
Other																			
J Church	Northbound																		
	Southbound																		
88 Mission BART Shuttle	To Balboa Park																		
Parkmerced BART Shuttle	To BART																		
	From BART																		
SFSU Shuttle	To BART	4				5		25	2	35	4				4		22	1	31
	From BART	4				5		26	2	37	4				4		21	1	31
BART (north of site)	Northbound	11				8			3	21	9				7			2	18
	Southbound	10				8			3	21	9				7			2	18
BART (south of site)	Northbound							43		43							36		36
	Southbound							41		41							36		36
28L 19th Avenue Limited (Balboa Park extension)	Eastbound			7						7			6						6
	Westbound			8						8			6						6



# Stonestown

Project Name	Transit Trips																	
	AM Peak Hour									PM Peak Hour								
Inbound	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total
Outbound	3	8	14	26	2	2	6	4	66	2	9	15	31	2	1	7	4	71
	1	4	7	13	1	1	3	2	31	3	12	21	42	3	2	10	5	97

Transit Line	Direction	AM Peak Hour									PM Peak Hour								
		SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total

<b>Tier 2</b>																			
<b>North Screenline</b>																			
18 48th Avenue	Northbound		1		2					3		2		7					9
	Southbound		1		4					6		1		S					7
28 19th Avenue	Northbound		1		4		1			6		4		14		1			19
	Southbound		3		9					13		3		10					14
28L 19th Avenue Limited	Northbound		1		2		0			3		2		7		1			10
	Southbound		1		4		1			6		1		S		0			7
29 Sunset	Northbound				4					4				14					14
	Southbound				9					9				10					10
Screenline Subtotal	Northbound		3		13		1			16		6		42		2			52
	Southbound		6		26		2			34		6		31		1			38

<b>Northeast Screenline</b>																			
M Ocean View	Northbound		1	1	2		1		2	6	3	4	7		3			S	22
	Southbound		3	3	S		2		4	16	2	3	S		2			4	16
Screenline Subtotal	Northbound		1	1	2		1		2	8	3	4	7		3			5	22
	Southbound		3	3	S		2		4	18	2	3	S		2			4	16

<b>East Screenline</b>																			
M Ocean View	Eastbound			2					2			7							7
	Westbound			S					S			S							S
29 Sunset	Eastbound								S										7
	Westbound								S										S
Screenline Subtotal	Eastbound			4					4			14							14
	Westbound								9			10							10

<b>South Screenline</b>																			
28 19th Avenue	Northbound						4		4								S		S
	Southbound						2		2								7		7
28L 19th Avenue Limited	Northbound						2		2								2		2
	Southbound						1		1								3		3
Screenline Subtotal	Northbound						6		6								7		7
	Southbound						3		3								10		10

<b>Local</b>																			
17 Parkmerced	Northbound																		
	Southbound																		
Screenline Subtotal	Northbound																		
	Southbound																		

<b>Other</b>																			
J Church	Northbound																		
	Southbound																		
88 Mission BART Shuttle	To Balboa Park																		
Parkmerced BART Shuttle	To BART																		
	From BART																		
SFSU Shuttle	To BART																		
	From BART																		
BART (north of site)	Northbound					1			2	3				3				S	8
	Southbound					2			4	7				2				4	6
BART (south of site)	Northbound							6		6							7		7
	Southbound							3		3							10		10
28L 19th Avenue Limited (Balboa Park extension)	Eastbound																		
	Westbound																		

<b>Tier 3</b>																			
<b>North Screenline</b>																			
18 48th Avenue	Northbound		1		2					3		2		7					9
	Southbound		1		4					6		1		S					7
28 19th Avenue	Northbound		1		4		1			6		3		14		1			16
	Southbound		2		9		1			12		2		10					13
28L 19th Avenue Limited	Northbound		1		2		0			3		3		7		1			11
	Southbound		2		4		1			7		2		S		0			8
29 Sunset	Northbound				4					4				14					14
	Southbound				9					9				10					10
Screenline Subtotal	Northbound		3		13		1			16		6		42		2			52
	Southbound		6		26		2			34		6		31		1			38

<b>Northeast Screenline</b>																			
M Ocean View	Northbound		1	1	2		1		2	6	3	4	7		3			S	22
	Southbound		3	3	S		2		4	16	2	3	S		2			4	16
Screenline Subtotal	Northbound		1	1	2		1		2	8	3	4	7		3			5	22
	Southbound		3	3	S		2		4	18	2	3	S		2			4	16

<b>East Screenline</b>																			
M Ocean View	Eastbound																		
	Westbound																		
29 Sunset	Eastbound			1					1			4							4
	Westbound								2			3							3
Screenline Subtotal	Eastbound			1					1			4							4
	Westbound								2			3							3

<b>South Screenline</b>																			
28 19th Avenue	Northbound						6		6								7		7
	Southbound						3		3								10		10
28L 19th Avenue Limited	Northbound																		
	Southbound																		
Screenline Subtotal	Northbound						6		6								7		7
	Southbound						3		3								10		10

<b>Local</b>																			
17 Parkmerced	Northbound																		
	Southbound																		
Screenline Subtotal	Northbound																		
	Southbound																		

Other																			
J Church	Northbound			2					2			7							7
	Southbound			S					S			S							5
68 Mission BART Shuttle	To Balboa Park																		
Parkmerced BART Shuttle	To BART																		
	From BART																		
SFSU Shuttle	To BART																		
	From BART																		
BART (north of site)	Northbound					1			2	3				3				5	8
	Southbound					2			4	7				2				4	8
BART (south of site)	Northbound							6		6								7	7
	Southbound							3		1								10	4
28L 19th Avenue Limited (Balboa Park extension)	Eastbound			1						1				4					4
	Westbound			2						2				3					3

Stonestown

Project Name	Transit Trips																	
	AM Peak Hour									PM Peak Hour								
	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total
Inbound	3	8	14	26	2	2	6	4	66	2	9	15	31	2	1	7	4	71
Outbound	1	4	7	13	1	1	3	2	31	3	12	21	42	3	2	10	5	97

Transit Line	Direction	AM Peak Hour									PM Peak Hour								
		SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total

**Tier 4A/C**

<b>North Screenline</b>																			
18 45th Avenue	Northbound			1	2					3		2		7					9
	Southbound			1	4					6		1		5					7
28 19th Avenue	Northbound			1	4		1			6		3		14		1			18
	Southbound			2	9		1			12		2		10		1			13
28L 19th Avenue Limited	Northbound			1	2		0			3		3		7		0			11
	Southbound			2	4		1			7		2		5					8
29 Sunset	Northbound				4					4				14					14
	Southbound				9					9				10					10
Screenline Subtotal	Northbound			3	13		1			18		8		42		2			52
	Southbound			8	26		2			34		8		31		1			38

**Northeast Screenline**

M Ocean View	Northbound	1	1	2		1		2		8	3	4	7		3			5	22
	Southbound	3	3	5		2		4		16	2	3	5		2			4	16
Screenline Subtotal	Northbound	1	1	2		1		2		8	3	4	7		3			5	22
	Southbound	3	3	5		2		4		16	2	3	5		2			4	18

**East Screenline**

M Ocean View	Eastbound			2						2			7						7
	Westbound			5						5			5						5
29 Sunset	Eastbound			1						1			4						4
	Westbound			2						2			3						3
Screenline Subtotal	Eastbound			3						3			11						11
	Westbound			7						7			8						8

**South Screenline**

28 19th Avenue	Northbound						6			6						7			7
	Southbound						3			3						10			10
28L 19th Avenue Limited	Northbound																		
	Southbound																		
Screenline Subtotal	Northbound						6			6						7			7
	Southbound						3			3						10			10

**Local**

17 Parkmerced	Northbound																		
	Southbound																		
Screenline Subtotal	Northbound																		
	Southbound																		

**Other**

J Church	Northbound																		
	Southbound																		
88 Mission BART Shuttle	To Balboa Park																		
Parkmerced BART Shuttle	To BART																		
	From BART																		
SFSU Shuttle	To BART																		
	From BART																		
BART (north of site)	Northbound					1		2		3				3			5		8
	Southbound					2		4		7				2			4		6
BART (south of site)	Northbound						6			6						7			7
	Southbound						3			3						10			10
28L 19th Avenue Limited (Balboa Park extension)	Eastbound				1					1			4						4
	Westbound				2					2			3						3

Balboa Park

Project Name		Transit Trips																	
		AM Peak Hour									PM Peak Hour								
		SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total
Inbound		2	2	7	1	1	0	1	1	15	34	9	23	6	7	2	11	3	55
Outbound		38	7	11	6	7	2	11	2	84	21	7	22	4	5	2	7	3	72

Transit Line	Direction	AM Peak Hour									PM Peak Hour								
		SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total
Tier 2																			
North Screenline																			
18 46th Avenue	Northbound																		
	Southbound																		
28 19th Avenue	Northbound																		
	Southbound																		
28L 19th Avenue Limited	Northbound																		
	Southbound																		
29 Sunset	Northbound																		
	Southbound																		
Screenline Subtotal	Northbound																		
	Southbound																		
Northeast Screenline																			
M Ocean View	Northbound																		
	Southbound																		
Screenline Subtotal	Northbound																		
	Southbound																		
East Screenline																			
M Ocean View	Eastbound				0					0				3					3
	Westbound				3					3				2					2
29 Sunset	Eastbound				3	0				3				6	3				8
	Westbound				2	3				5				6	2				8
Screenline Subtotal	Eastbound				3	1				4				8	6				11
	Westbound				2	6				7				6	4				10
South Screenline																			
28 19th Avenue	Northbound																		
	Southbound																		
28L 19th Avenue Limited	Northbound																		
	Southbound																		
Screenline Subtotal	Northbound																		
	Southbound																		
Local																			
17 Parkmerced	Northbound																		
	Southbound																		
Screenline Subtotal	Northbound																		
	Southbound																		
Other																			
J Church	Northbound																		
	Southbound																		
88 Mission BART Shuttle	To Balboa Park																		
Parkmerced BART Shuttle	To BART																		
	From BART																		
SFSU Shuttle	To BART																		
	From BART																		
BART (north of site)	Northbound	38	3	6		7	2		2	58	21	4	11		5	2		3	46
	Southbound	2	1	3		1	0		1	9	34	4	12		7	2		3	62
BART (south of site)	Northbound							1		1							11		11
	Southbound							11		11							7		7
28L 19th Avenue Limited (Balboa Park extension)	Eastbound																		
	Westbound																		

Tier 3																			
North Screenline																			
18 46th Avenue	Northbound																		
	Southbound																		
28 19th Avenue	Northbound																		
	Southbound																		
28L 19th Avenue Limited	Northbound																		
	Southbound																		
29 Sunset	Northbound																		
	Southbound																		
Screenline Subtotal	Northbound																		
	Southbound																		
Northeast Screenline																			
M Ocean View	Northbound																		
	Southbound																		
Screenline Subtotal	Northbound																		
	Southbound																		
East Screenline																			
M Ocean View	Eastbound																		
	Westbound																		
29 Sunset	Eastbound				3					3				6					6
	Westbound				2					2				6					6
Screenline Subtotal	Eastbound				3					3				6					6
	Westbound				2					2				6					6
South Screenline																			
28 19th Avenue	Northbound																		
	Southbound																		
28L 19th Avenue Limited	Northbound																		
	Southbound																		
Screenline Subtotal	Northbound																		
	Southbound																		
Local																			
17 Parkmerced	Northbound																		
	Southbound																		
Screenline Subtotal	Northbound																		
	Southbound																		
Other																			
J Church	Northbound				0					0				3					3
	Southbound				3					3				2					2
88 Mission BART Shuttle	To Balboa Park																		
Parkmerced BART Shuttle	To BART																		
	From BART																		
SFSU Shuttle	To BART																		
	From BART																		
BART (north of site)	Northbound	38	3	6		7	2		2	58	21	4	11		5	2		3	46
	Southbound	2	1	3		1	0		1	9	34	4	12		7	2		3	62
BART (south of site)	Northbound							1		1							11		11
	Southbound							11		11							7		7
28L 19th Avenue Limited (Balboa Park extension)	Eastbound				0					0				3					3
	Westbound				3					3				2					2



# Balboa Park

Project Name		Transit Trips																	
		AM Peak Hour									PM Peak Hour								
		SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total
Inbound	2	2	7	1	1	0	1	1	15	34	9	23	6	7	2	11	3	95	
Outbound	38	7	11	6	7	2	11	2	84	21	7	22	4	5	2	7	3	72	

Transit Line	Direction	AM Peak Hour									PM Peak Hour								
		SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total	SD-1	SD-2	SD-3	SD-4	EB	NB	SB	Other	Total

Tier 4A/C																			
North Screenline																			
18 46th Avenue	Northbound																		
	Southbound																		
28 19th Avenue	Northbound																		
	Southbound																		
28L 19th Avenue Limited	Northbound																		
	Southbound																		
29 Sunset	Northbound																		
	Southbound																		
Screenline Subtotal	Northbound																		
	Southbound																		
Northeast Screenline																			
M Ocean View	Northbound																		
	Southbound																		
Screenline Subtotal	Northbound																		
	Southbound																		
East Screenline																			
M Ocean View	Eastbound				0				0				3						3
	Westbound				3				3				2						2
29 Sunset	Eastbound			3					3			6							6
	Westbound			2					2			6							6
Screenline Subtotal	Eastbound			3	0				3			6	3						8
	Westbound			2	3				5			8	2						8
South Screenline																			
28 19th Avenue	Northbound																		
	Southbound																		
28L 19th Avenue Limited	Northbound																		
	Southbound																		
Screenline Subtotal	Northbound																		
	Southbound																		
Local																			
17 Parkmerced	Northbound																		
	Southbound																		
Screenline Subtotal	Northbound																		
	Southbound																		
Other																			
J Church	Northbound																		
	Southbound																		
88 Mission BART Shuttle	To Balboa Park																		
Parkmerced BART Shuttle	To BART																		
	From BART																		
SFSU Shuttle	To BART																		
	From BART																		
BART (north of site)	Northbound	38	3	6		7	2		2	58	21	4	11		5	2		3	46
	Southbound	2	1	3		1	0		1	9	34	4	12		7	2		3	62
BART (south of site)	Northbound							1		1							11		11
	Southbound							11		11							7		7
28L 19th Avenue Limited	Eastbound				0					0				3					3
(Balboa Park extension)	Westbound				3					3				2					2

**Parkmerced**

Transit Line	Direction	Transit Time																				Total
		AM Peak Hour																				
		SD-4		SD-1		SD-2		SD-3		SD-3		SD-3		SD-3		SD-3		SD-3		SD-3		
Project Name	SFSU	Stones	Sunset	Dwntwn	SOMA	NB / CT	W. Mkt.	Marina	Rich.	Mission	NGB	Baych.	O. Miss.	Hill Dist.	East Bay	N. Bay	S. Bay	Briss.	Colma	ESF	Total	
North Screenline	Inbound	0	5	0	46	7	11	4	5	3	0	0	0	0	0	0	0	0	0	4	1	88
	Outbound	0	8	0	158	28	40	8	11	5	0	0	0	0	0	0	0	0	0	4	0	260
	Screenline Subtotal																					
	Direction	SFSU	Stones	Sunset	Dwntwn	SOMA	NB / CT	W. Mkt.	Marina	Rich.	Mission	NGB	Baych.	O. Miss.	Hill Dist.	East Bay	N. Bay	S. Bay	Briss.	Colma	ESF	Total
Northeast Screenline	Northbound			0						1												1
	Southbound			0						0												0
	Northbound			0					7	3						0						10
	Southbound			0					3	2						0						5
28L 19th Avenue Limited	Northbound			0					4	2												6
	Southbound			0					2	1												3
	Northbound			0																		3
	Southbound			0																		3
29 Sunset	Northbound			0																		16
	Southbound			0																		8
	Northbound			0					11	5												16
	Southbound			0					5	3												8
Northeast Screenline	Northbound			0																		120
	Southbound			0																		36
	Northbound			0					7	3						0						10
	Southbound			0					3	2						0						5
28L 19th Avenue Limited	Northbound			0					4	2												6
	Southbound			0					2	1												3
	Northbound			0																		3
	Southbound			0																		3
29 Sunset	Northbound			0																		16
	Southbound			0																		8
	Northbound			0					11	5												16
	Southbound			0					5	3												8
East Screenline	Eastbound										0											0
	Westbound										0											0
	Eastbound										0	0	0	0								120
	Westbound										0	0	0	0								36
South Screenline	Northbound																					0
	Southbound																					0
	Northbound																					0
	Southbound																					0
Local	Northbound																					0
	Southbound																					0
	Northbound																					0
	Southbound																					0
17 Palmerized	Northbound																					0
	Southbound																					0
	Northbound																					0
	Southbound																					0
Other	Northbound																					0
	Southbound																					0
	Northbound																					0
	Southbound																					0
J Church	Northbound																					0
	Southbound																					0
	Northbound																					0
	Southbound																					0
28L 19th Avenue Limited	Northbound																					0
	Southbound																					0
	Northbound																					0
	Southbound																					0
29 Sunset	Northbound																					0
	Southbound																					0
	Northbound																					

Parkmerced

[illegible]



parmerced

Project Name	Transit Trips All Peak Hour																								
	SD-1								SD-2								SD-3								Total
	SFSU	Stones	Sunset	Downtown	SOMA	NB / CT	W.Mkt.	Marina	Rich.	Mission	NGB	Baysh.	O. Mies.	Hill Dist.	East Bay	N. Bay	S. Bay	Colma	SF						
Inbound	0	5	0	46	7	11	4	5	3	0	0	0	0	0	0	0	0	4	1	66					
Outbound	0	6	0	159	26	40	6	11	5	0	0	0	0	0	0	0	0	4	0	260					
Direction	SD-4	Shops	Sunset	Downtown	SOMA	NB / CT	W.Mkt.	Marina	Rich.	Mission	NGB	Baysh.	O. Mies.	Hill Dist.	East Bay	N. Bay	S. Bay	Colma	SF						
Northbound																									
Southbound																									
Northbound									3										3						
Southbound									2										2						
Northbound								11	2										13						
Southbound								5	1										6						
Northbound																									
Southbound																									
Northbound								11	5										18						
Southbound								5	3										8						
Northbound																									
Southbound																									
Northbound																									
Southbound																									
Northbound																									
Southbound																									
Northbound																									
Southbound																									
Northbound																									
Southbound																									
Northbound																									
Southbound																									
Northbound																									
Southbound																									
Northbound																									
Southbound																									
Northbound																									
Southbound																									
Northbound																									
Southbound																									
Northbound																									
Southbound																									
Northbound																									
Southbound																									
Northbound																									
Southbound																									
Northbound																									
Southbound																									
Northbound																									

Parkmerced

[illegible]

Transit Line		Direction		Transit Times PM Peak Hour																Total					
				SD-4				SD-1				SD-2				SD-3									
				SFSU	Stones.	Sunset	Somers	Downtown	SOMA	NB / CT	W. Mkt.	Marina	Rich.	Mission	NOB	Baysh.	O. Miss.	Hill Dist.	East Bay	N. Bay	6. Bay	Brks.	Coma	SSF	
Inbound		Cubound		3	17	0	215	0	42	57	23	25	15	0	0	0	2	0	0	0	0	0	15	6	420
				2	12	0	132	0	132	26	18	18	11	2	1	0	1	0	0	0	0	0	12	4	275
Transit Line		Direction		SD-4				SD-1				SD-2				SD-3				Total					
				SFSU	Stones.	Sunset	Somers	Downtown	SOMA	NB / CT	W. Mkt.	Marina	Rich.	Mission	NOB	Baysh.	O. Miss.	Hill Dist.	East Bay	N. Bay	6. Bay	Brks.	Coma	SSF	
North Screenline		Northbound																							7
		Southbound											7												10
28th Avenue		Northbound											10												22
28th Avenue Limited		Southbound										18	4												30
29th Sunset		Northbound											25	5											
		Southbound																							29
Screenline Subtotal		Southbound										25	15												40
Northeast Screenline		Northbound						66	13	18	18														115
M Ocean View		Southbound						108	21	29	23														180
Screenline Subtotal		Southbound						66	13	18	18														115
								108	21	29	23														180
East Screenline		Eastbound																							
M Ocean View		Westbound																							1
29th Sunset		Eastbound																							1
		Westbound																							1
Screenline Subtotal		Eastbound																							1
		Westbound																							1
South Screenline		Northbound																							
28th Avenue		Southbound																							
28th Avenue Limited		Northbound																							
		Southbound																							
Screenline Subtotal		Northbound																							
		Southbound																							
Local		Northbound																							
17 Palmerized		Southbound																							
Screenline Subtotal		Northbound																							
		Southbound																							
Other		Northbound														1									2
J Church		Southbound																							
88 Mission BART Shuttle		To BART																							
Palmerized BART Shuttle		From BART						66	13	18													12	4	114
								108	21	29													15	8	178
SFSU Shuttle		To BART																							
		From BART																							
BART (north of s/s)		Northbound						66	13	18															88
		Southbound						108	21	29															157
BART (south of s/s)		Northbound																					15	6	21
28th Avenue Limited		Southbound																					12	4	16
(Bartco Park setting)		Eastbound																							1
		Westbound																							1



[illegible]

## **APPENDIX H. TRANSIT TRAVEL TIME CALCULATIONS**

---





The calculation of transit travel time as a result of roadway congestion is based on movement delays calculated at intersections as part of the intersection LOS analysis. The following additional assumptions were made in this analysis:

- The transit signal priority improvements under Tier 3 are assumed to produce a 10 percent reduction in transit delay at intersections along 19th Avenue. This is primarily based on the assumption that for an approximately 100-second cycle, there is approximately a ten-second window during which buses can place calls with the signal to extend the phase. Based on a random arrival rate for buses, this means ten percent of buses will see time benefits from the signal priority. Vehicles on the M, which operate in a median and are not subject to delays related to roadway congestion and queuing, were not assumed to benefit from the signal priority.
- The reroute of the 29 in scenarios where Parkmerced is assumed to be built—i.e., Tier 2, Tier 3, and Tier 4—is assumed to be as follows:
  - SBR at 19th Avenue / Holloway Avenue;
  - Loop within internal street network of Parkmerced; and,
  - EBT at 19th Avenue / Holloway Avenue.
- The M crossing at Rossmoor Drive is analyzed as a one-way stop-controlled intersection, with traffic on northbound 19th Avenue assumed to be uncontrolled. A calibration factor was calculated for Existing Conditions to reconcile the reported delay from the Highway Capacity Manual (HCM) LOS analysis for this configuration with actual conditions. The calibration factor was then applied to all reported delays under future scenarios to obtain an estimate of the delays to the M at this crossing.
- Travel times between 19th Avenue / Junípero Serra Boulevard and 19th Avenue / Holloway Avenue under the existing alignment in the median of 19th Avenue (including running time and stop delays) were based on field surveys of existing travel time on this section of the M. Calculations for alignments through Parkmerced were developed based on the following travel time elements:
  - Running time (including time to accelerate, coast at constant speed, and decelerate), based on average speeds through intersections, curves, and approaching / departing stations;
  - Dwell time at stations, based on existing dwell time at stations expected to be similar to the proposed stations within Parkmerced; and,
- Intersection delay, based on average delay for train movements calculated from HCM intersection analysis and microsimulation.







19th Avenue transit priority (reduction)	0.1
Add'l delay for 29 reroute (sec)	80.0

LRT wait @ Holloway (existing signals)	31.0	*(see J Line Alternatives Travel Time Analysis)
Travel time (existing 19th Ave. alignment)	66.0	
Junipero Serra to Holloway	56.0	*(see J Line Alternatives Travel Time Analysis)
Junipero Serra to Crespi		
Travel time (Perkermerd alignment)		
Full	185.0	*(see J Line Alternatives Travel Time Analysis)
Sub	153.0	*(see J Line Alternatives Travel Time Analysis; 3.05 - 0.32)
LRT wait @ Holloway (new signals)	45.0	*(From microsimulation)
LRT wait @ Junipero Serra (new signals)	45.0	*(From microsimulation)

J SB	Mvmt	Weekday AM Peak Hour							
		Ex	Tier 1	Tier 2	Tier 3	Tier 3	Tier 4A	Tier 4B	Tier 4C
Travel time in 19th Ave. median		65.0	65.0	66.0	59.0	56.0		56.0	
19th / Junipero Serra	EBT	44.3	45.3	49.5	49.5	49.5		50.7	
TOTAL		110.3	111.3	115.5	108.5	105.5		106.7	
Difference			0:00	0:19	0:06	0:00		-0:00	

J NB	Mvmt	Weekday AM Peak Hour							
		Ex	Tier 1	Tier 2	Tier 3	Tier 3	Tier 4A	Tier 4B	Tier 4C
19th / Junipero Serra	WBT	62.5	70.5	84.3	84.3	84.3		64.6	
Travel time in 19th Ave. median		66.0	66.0	66.0	56.0	56.0		56.0	
19th / Holloway	NBT	31.0	31.0	31.0					
TOTAL		159.5	167.5	181.3	140.3	140.3		120.6	
Difference			0:16	0:20	0:20	0:20		-0:40	

19th Avenue transit priority (reduction)	0.1
Additional delay for 29 reroute (sec)	80.0
LRT wait @ Holloway (existing signals)	31.0
Travel time (existing 19th Ave. alignment)	
Junipero Serra to Holloway	66.0
Junipero Serra to Crespi	56.0
Travel time (Parkmerced alignment)	
Full	185.0
Sub	153.0
LRT wait @ Holloway (new signals)	45.0
LRT wait @ Junipero Serra (new signals)	45.0

28/28L SB	M/vmt	Weekday PM Peak Hour									
		Ex	Tier 1	Tier 2	Tier 3	Tier 3	Tier 4A	Tier 4A	Tier 4B	Tier 4C	Tier 4C
19th / Sloat	SBT	85.6	155.0	183.0	163.0	164.7	183.0	164.7	183.0	164.7	164.7
19th / Ocean	SBT	10.1	33.5	48.9	48.8	44.0	48.9	44.0	48.9	44.0	44.0
19th / Eucalyptus	SBT	8.1	16.8	26.3	26.3	23.7	26.3	23.7	26.3	23.7	23.7
19th / Winston	SBT	23.3	30.5	32.5	32.5	29.3	32.5	29.3	32.5	29.3	29.3
19th / Holloway	SBT	7.8	170.0	191.0	191.0	171.9	191.0	171.9	191.0	171.9	171.9
Junipero Serra / 19th	EBR	70.5	105.1	131.1	131.1	118.0	132.2	119.0	132.2	119.0	119.0
Junipero Serra / Chumasero	SBT						50.4	45.4	42.1	37.9	42.9
TOTAL		205.4	510.9	612.8	612.8	561.5	597.9	630.0	490.9	543.4	414.3
Difference			5.00	6.40	6.40	5.40	7.30	6.30	5.30	3.10	3.20

28/28L NB	M/vmt	Weekday PM Peak Hour									
		Ex	Tier 1	Tier 2	Tier 3	Tier 3	Tier 4A	Tier 4A	Tier 4B	Tier 4C	Tier 4C
Junipero Serra / Chumasero	NBT	98.4	137.2	166.6	217.3	195.6	68.0	59.4	68.0	59.4	134.6
Junipero Serra / 19th	NBT	5.3	70.7	67.2	67.2	60.5	67.2	60.5	67.2	108.0	97.2
19th / Holloway	NBT	55.6	92.4	84.4	84.4	76.0	84.4	76.0	84.4	76.0	76.0
19th / Winston	NBT	103.0	151.0	175.0	175.0	157.5	175.0	157.5	175.0	175.0	157.5
19th / Eucalyptus	NBT	241.0	315.0	354.0	354.0	318.6	354.0	318.6	354.0	318.6	318.6
19th / Ocean	NBT	126.0	175.0	203.0	203.0	182.7	203.0	182.7	203.0	182.7	182.7
TOTAL		829.3	941.3	1050.2	1050.2	990.8	1052.3	857.1	992.9	977.9	970.5
Difference			5.10	7.00	7.00	6.00	5.20	3.50	4.30	2.30	5.40

29 SB	M/vmt	Weekday PM Peak Hour									
		Ex	Tier 1	Tier 2	Tier 3	Tier 3	Tier 4A	Tier 4A	Tier 4B	Tier 4C	Tier 4C
19th / Winston	EBR	99.7	64.5	163.6	163.6	163.6	163.6	163.6	163.6	163.6	163.6
19th / Holloway	SBR			11.1	11.1	10.0	11.1	10.0	12.9	14.3	12.9
19th / Holloway	EBT			54.3	54.3	54.3	54.3	54.3	87.4	85.5	65.5
Additional uncontrolled delay				60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
19th / Holloway	SBT	7.8	170.0								
19th / Crespi	SBR	0.0	0.0								
19th / Crespi	EBL	32.5	32.5								
19th / Holloway	NBR	5.3	70.7								
TOTAL		145.3	337.7	289.0	289.0	289.0	289.0	287.9	323.9	303.4	302.0
Difference			3.10	2.20	2.20	2.20	2.20	2.20	2.50	2.30	2.30

	Weekday AM Peak Hour					Weekday PM Peak Hour				
	4A HOT	4B HOT	4C HOT	4C HOT	4A HOT	4A HOT	4B HOT	4C HOT	4C HOT	4C HOT
	123.3	123.3	123.3	123.3	123.3	164.7	164.7	164.7	164.7	164.7
	56.7	56.7	56.7	56.7	44.0	44.0	44.0	44.0	44.0	44.0
	29.7	29.7	29.7	29.7	23.7	23.7	23.7	23.7	23.7	23.7
	56.9	56.9	56.9	56.9	29.3	29.3	29.3	29.3	29.3	29.3
	8.1	8.1	8.1	8.1	7.6	7.6	7.6	7.6	7.6	7.6
	6.5	6.5	6.5	6.5	5.8	5.8	5.8	5.8	5.8	5.8
	23.7	23.7	23.7	23.7	45.4	45.4	45.4	45.4	45.4	45.4
	304.9	305.0	314.3	314.3	320.4	320.4	312.8	312.8	328.8	328.8
	1:10	1:10	1:10	1:10	1:50	1:50	1:40	1:40	2:00	2:00

18th Avenue transit priority (reduction)	0.1
Add'l delay for 29 reroute (sec)	60.0
LRT wait @ Holloway (existing signals)	31.0
Travel time (existing 18th Ave. alignment)	
Junipero Serra to Holloway	88.0
Junipero Serra to Crespi	58.0
Travel time (Parkmerced alignment)	
Full	185.0
Stub	153.0
LRT wait @ Holloway (new signals)	45.0
LRT wait @ Junipero Serra (new signals)	45.0

29 NB	Mvmt	Weekday PM Peak Hour							
		Ex	Tier 1	Tier 2	Tier 3	Tier 3	Tier 4A	Tier 4B	Tier 4C
18th / Holloway	WBR	27.9	30.5	59.2	59.2	59.2	103.0	103.0	44.5
18th / Winston	NBL	81.5	83.2	158.3	158.3	142.5	158.3	142.5	142.5
TOTAL		109.4	113.7	217.5	217.5	201.7	261.3	245.5	187.0
Difference			0:00	1:50	1:50	1:30	2:30	2:20	1:20

M SB	Mvmt	Weekday PM Peak Hour							
		Ex	Tier 1	Tier 2	Tier 3	Tier 3	Tier 4A	Tier 4B	Tier 4C
18th / Rossmoor	SBT	68.3	90.4	107.0	107.0	107.0	107.0	107.0	107.0
18th / Winston	SBT	23.3	30.5	32.5	32.5	32.5	32.5	32.5	32.5
18th / Holloway	SBT	31.0	31.0	31.0	31.0	31.0	31.0	45.0	45.0
18th / Junipero Serra	EBT	73.0	71.9	110.0		59.7			
18th / Holloway	LRT								
Travel time inside Parkmerced							152.0	153.0	185.0
18th / Junipero Serra	LRT								45.0
TOTAL		195.6	223.8	280.5	139.5	139.5	230.2	337.5	414.5
Difference			0:20	1:20	3:50	3:50	0:30	2:20	3:30

M NB	Mvmt	Weekday PM Peak Hour							
		Ex	Tier 1	Tier 2	Tier 3	Tier 3	Tier 4A	Tier 4B	Tier 4C
18th / Junipero Serra	WBT	64.0	67.0	91.5			57.3		
Travel time in 18th Ave. median									
18th / Holloway	NBT	66.0	66.0	66.0			66.0		
18th / Junipero Serra	LRT	31.0	31.0	31.0			31.0		
Travel time inside Parkmerced								153.0	153.0
18th / Holloway	LRT							45.0	45.0
18th / Winston	NBL	81.5	83.2	158.3	158.3	158.3	158.3	158.3	158.3
18th / Rossmoor	NBL	88.3	90.4	107.0	107.0	107.0	107.0	107.0	107.0
TOTAL		310.8	337.6	453.8	265.3	265.3	419.6	483.3	540.3
Difference			0:30	2:20	0:40	0:40	1:50	2:30	3:50



19th Avenue transit priority (reduction)	0.1
Adtl delay for 29 reroute (sec)	60.0
LRT wait @ Holloway (existing signals)	31.0
Travel time (existing 19th Ave. alignment)	66.0
Junipero Serra to Holloway	56.0
Junipero Serra to Crespi	185.0
Travel time (Parkmead alignment)	153.0
Stub	45.0
LRT wait @ Holloway (new signals)	45.0
LRT wait @ Junipero Serra (new signals)	45.0

J SB	Mvmt	Weekday PM Peak Hour							
		Ex	Tier 1	Tier 2	Tier 3	Tier 3	Tier 4A	Tier 4B	Tier 4C
Travel time in 19th Ave. median		66.0	66.0	66.0	56.0	56.0		56.0	
19th / Junipero Serra	EBT	73.0	71.9	110.0	51.6	51.6		59.7	
TOTAL		139.0	137.9	176.0	107.6	107.6		115.7	
Difference			0:00	0:39	-0:30	-0:30		0:10	

J NB	Mvmt	Weekday PM Peak Hour							
		Ex	Tier 1	Tier 2	Tier 3	Tier 3	Tier 4A	Tier 4B	Tier 4C
19th / Junipero Serra	WBT	64.0	67.0	91.5	49.6	49.6		57.3	
Travel time in 19th Ave. median		66.0	66.0	66.0	56.0	56.0		56.0	
19th / Holloway	NBT	31.0	31.0	31.0					
TOTAL		161.0	154.0	188.5	105.6	105.6		113.3	
Difference		0:00	0:00	0:30	-0:30	-0:30		0:50	

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to DMJM HARRIS, OAKLAND, CA

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to DMJM HARRIS, OAKLAND, CA

Traffix 8.0.0715 (c) 2008 Bowling Assoc. Licensed to DMM HARRIS, OAKLAND, CA

Traffix 8-0-0715 (c) 2008 Dowling Assoc. Licensed to OMTM HARRIS OAKLAND CA

19th Ave CS																	
Tier 3																	
Level Of Service Computation Report																	
2000 HCM Unsignalized Method (Future Volume Alternative)																	
Intersection #1130 19th / Rossmoor																	
Average Delay (sec/veh): 0.5 Worst Case Level Of Service: F[107.0]																	
Street Name:				19th				Eucalyptus									
Approach:		North Bound		South Bound		East Bound		West Bound									
Movement:		L	T	R	L	T	R	L	T	R	L	T	R	L	T	R	
Control:		Uncontrolled		Uncontrolled		Stop Sign		Stop Sign									
Rights:		Include		Include		Include		Include									
Lanes:		0	0	2	1	0	0	0	0	1	0	0	0	0	1	0	0
Volume Module:																	
Base Vol:		0		2303		0		0		0		6		0		6	
Growth Adj:		1.13		1.12		1.10		1.13		1.18		1.16		1.00		1.00	
Initial Bse:		0		2569		0		0		0		0		6		6	
Added Vol:		0		121		18		0		137		33		45		84	
PasserByVol:		0		18		-18		0		-137		-33		-45		-84	
Initial Fut:		0		2708		0		0		0		0		6		6	
User Adj:		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Adj:		0.98		0.98		0.98		0.98		0.98		0.98		0.98		0.98	
PHF Volume:		0		2763		0		0		0		0		6		6	
Reduct Vol:		0		0		0		0		0		0		0		0	
FinalVolume:		0		2763		0		0		0		0		6		6	
Critical Gap Module:																	
Critical Gap:		XXXXXX		XXXXXX		XXXXXX		XXXXXX		XXXXXX		XXXXXX		7.5		5.5	
FollowUpTm:		XXXXXX		XXXXXX		XXXXXX		XXXXXX		XXXXXX		XXXXXX		3.5		4.0	
Capacity Module:																	
Conflict Vol:		XXXXXX		XXXXXX		XXXXXX		XXXXXX		XXXXXX		XXXXXX		924		2763	
Potent Cap.:		XXXXXX		XXXXXX		XXXXXX		XXXXXX		XXXXXX		XXXXXX		224		41	
Move Cap.:		XXXXXX		XXXXXX		XXXXXX		XXXXXX		XXXXXX		XXXXXX		199		41	
Volume/Cap:		XXXXXX		XXXXXX		XXXXXX		XXXXXX		XXXXXX		XXXXXX		0.00		0.15	
Level Of Service Module:																	
2Way95thQ:		XXXXXX		XXXXXX		XXXXXX		XXXXXX		XXXXXX		XXXXXX		XXXXXX		XXXXXX	
Control Del:		XXXXXX		XXXXXX		XXXXXX		XXXXXX		XXXXXX		XXXXXX		XXXXXX		XXXXXX	
LOS by Move:																	
Movement:		LT		LTA		RT		LT		LTA		RT		LT		LTA	
Shared Cap.:		XXXXXX		XXXXXX		XXXXXX		XXXXXX		XXXXXX		XXXXXX		41		XXXXXX	
SharedQueue:		XXXXXX		XXXXXX		XXXXXX		XXXXXX		XXXXXX		XXXXXX		0.5		XXXXXX	
Shrd ConDel:		XXXXXX		XXXXXX		XXXXXX		XXXXXX		XXXXXX		XXXXXX		107.0		XXXXXX	
Shared LOS:		*		*		*		*		*		*		F		*	
ApproachDel:		XXXXXX		XXXXXX		XXXXXX		XXXXXX		XXXXXX		XXXXXX		107.0		XXXXXX	
ApproachLOS:		*		*		*		*		*		*		F		*	
Note: Queue reported is the number of cars per lane.																	

19th Ave CS																	
Tier 3																	
Level of Service Computation Report																	
2000 HCM Unsignalized Method (Future Volume Alternative)																	
Intersection #1130 19th / Rossmoor																	
Average Delay (sec/veh): 0.5 Worst Case Level of Service: F(107.0)																	
Street Name:		19th					Euclalyptus										
Approach:	North Bound			South Bound			East Bound			West Bound							
Movement:	L	T	R	L	T	R	L	T	R	L	T	R	L	T	R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign							
Rights:	Include			Include			Include			Include							
Lanes:	0	2	1	0	0	0	0	1	0	0	1	0	0	0	1	0	0
Volume Module:																	
Base Vol:	0 2303			0 0 0			0 0 6			0 0 6			0 0 6				
Growth Adj:	1.13	1.12	1.10	1.13	1.18	1.16	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Initial Bse:	0 2569			0 0 0			0 0 6			0 0 6			0 0 6				
Added Vol:	0 121			0 137			33 45 84			0 13 62			0 13 62				
PasserByVol:	0 18			-137 -33			-45 -84			0 -13 -62			0 -13 -62				
Initial Fut:	0 2708			0 0 0			0 0 6			0 0 6			0 0 6				
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98		
PHF Volume:	0 2763			0 0 0			0 0 6			0 0 6			0 0 6				
Reduct Vol:	0 0			0 0 0			0 0 0			0 0 0			0 0 0				
FinalVolume:	0 2763			0 0 0			0 0 6			0 0 6			0 0 6				
Critical Gap Module:																	
Critical Gap:XXXXXX XXXX XXXXX XXXXX XXXX XXXX XXXXX							7.5 5.5 XXXXX						7.5 5.5 XXXXX				
FollowUpTime:XXXXXX XXXX XXXXX XXXXX XXXX XXXX XXXXX							3.5 4.0 XXXXX						3.5 4.0 XXXXX				
Capacity Module:																	
Cnflict Vol: XXXX XXXX XXXXX XXXX XXXX XXXXX							924 2763 XXXXX						2766 2763 XXXXX				
Potent Cap: XXXX XXXX XXXXX XXXX XXXX XXXXX							224 41 XXXXX						9 41 XXXXX				
Move Cap: XXXX XXXX XXXXX XXXX XXXX XXXXX							199 41 XXXXX						8 41 XXXXX				
Volume/Cap: XXXX XXXX XXXX XXXX XXXX XXXX							0.00 0.15 XXXX						0.00 0.15 XXXX				
Level Of Service Module:																	
2Way95thQ: XXXX XXXX XXXXX XXXX XXXX XXXXX XXXX XXXX XXXXX XXXX XXXX XXXXX XXXX XXXX XXXXX																	
Control Del:XXXXXX XXXX XXXXX XXXXX XXXX XXXX XXXXX XXXXX XXXX XXXX XXXXX XXXX XXXX XXXXX																	
LOS by Move:																	
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT				
SharedQueue:XXXXXX XXXX XXXXX XXXX XXXX XXXXX							41 XXXX XXXXX						41 XXXX XXXXX				
ShredQueue:XXXXXX XXXX XXXXX XXXX XXXX XXXX							0.5 XXXX XXXXX						0.5 XXXX XXXXX				
Shrd Condel:XXXXXX XXXX XXXX XXXX XXXX XXXX							107.0 XXXX XXXXX						107.0 XXXX XXXXX				
Shared LOS:	* * *			* * *			F * *						F * *				
ApproachDel:	XXXXXX			XXXXXX			107.0						107.0				
ApproachLOS:	*			*			F						F				
Note: Queue reported is the number of cars per lane.																	



MITIG8 - Tier 4a AM		Mon Jan 11, 2010 10:12:05				Page 1-1			
19th Ave CS									
Tier 4b									
-----									
Level Df Service Computation Report									
2000 HCM Unsignalized Method (Future Volume Alternative)									
-----									
Intersection #1130 19th / Rossmoor									
-----									
Average Delay (sec/veh):		0.4		Worst Case Level of Service: F[ 58.6]					
-----									
Street Name:		19th				Eucalyptus			
Approach:		North Bound		South Bound		East Bound		West Bound	
Movement:		L - T - R		L - T - R		L - T - R		L - T - R	
Control:		Uncontrolled		Uncontrolled		Stop Sign		Stop Sign	
Rights:		Include		Include		Include		Include	
Lanes:		0 0 2 1 0		0 0 0 1 0		0 1 0 0 0		0 1 0 0 0	
-----									
Volume Module:									
Base Vol:		0 1869		0 0 0 0		0 7 0		0 0 7 0	
Growth Adj:		1.16 1.14		1.14 1.09 1.14		1.00 1.00 1.00		1.00 1.00 1.00	
Initial Base:		0 2124		0 0 0 0		0 7 0		0 0 7 0	
Added Vol:		0 105		3 0 19 16		8 14		7 30	
PasserByVol:		0 3		-3 -19 -16		-8 -14		-7 -30	
Initial Fut:		0 2232		0 0 0 0		0 7 0		0 7 0	
User Adj:		1.00 1.00		1.00 1.00 1.00		1.00 1.00 1.00		1.00 1.00 1.00	
PHF Adj:		0.98 0.98		0.98 0.98 0.98		0.98 0.98 0.98		0.98 0.98 0.98	
PHF Volume:		0 2278		0 0 0 0		0 7 0		0 7 0	
Reduct Vol:		0 0		0 0 0 0		0 0 0 0		0 0 0 0	
FinalVolume:		0 2278		0 0 0 0		0 7 0		0 7 0	
-----									
Critical Gap Module:									
Critical Gap:xxxxxx		xxxx xxxxx		xxxxxx xxxxx		7.5 5.5 xxxxxx		7.5 5.5 xxxxxx	
FollowUpTim:xxxxxx		xxxx xxxxx		xxxxxx xxxxx		3.5 4.0 xxxxxx		3.5 4.0 xxxxxx	
-----									
Capacity Module:									
Cnflct Vol:		xxxxxx xxxxx		xxxxxx xxxxx		763 2278 xxxxxx		2281 2278 xxxxxx	
Potent Cap:		xxxxxx xxxxx		xxxxxx xxxxx		294 74 xxxxxx		21 74 xxxxxx	
Move Cap:		xxxxxx xxxxx		xxxxxx xxxxx		272 74 xxxxxx		20 74 xxxxxx	
Volume/Cap:		xxxxxx xxxxx		xxxxxx xxxxx		0.00 0.10 xxxxx		0.00 0.10 xxxxx	
-----									
Level of Service Module:									
2Way95thQ:		xxxxxx xxxxx		xxxxxx xxxxx		xxxxxx xxxxx		xxxxxx xxxxx	
Control Del:xxxxxx		xxxxxx xxxxx		xxxxxx xxxxx		xxxxxx xxxxx		xxxxxx xxxxx	
LDS by Move:		* * *		* * *		* * *		* * *	
Movement:		LT - LTR - RT		LT - LTR - RT		LT - LTR - RT		LT - LTR - RT	
Shared Cap:		xxxxxx xxxxx		xxxxxx xxxxx		74 xxxxx		74 xxxxx	
SharedQueue:xxxxxx		xxxxxx xxxxx		xxxxxx xxxxx		0.3 xxxxx		0.3 xxxxx	
Shrd ConDel:xxxxxx		xxxxxx xxxxx		xxxxxx xxxxx		58.6 xxxxx		58.6 xxxxx	
Shared LDS:		* * *		* * *		F * *		F * *	
ApproachDel:		xxxxxxx		xxxxxxx		58.6		58.6	
ApproachLOS:		*		*		F		F	
-----									
Note: Queue reported is the number of cars per lane.									

Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to DMJM HARRIS, OAKLAND, CA

MITIG8 - Tier 4a PM		Mon Jan 11, 2010 10:12:19				Page 1-1			
19th Ave CS									
Tier 4b									
-----									
Level Of Service Computation Report									
2000 HCM Unsignalized Method (Future Volume Alternative)									
-----									
Intersection #1130 19th / Rossmoor									
Average Delay (sec/vehl):		0.5		Worst Case Level Of Service: F[107.0]					
-----									
Street Name:		19th		Eucalyptus					
Approach:		North Bound		South Bound		East Bound		West Bound	
Movement:		L - T - R		L - T - R		L - T - R		L - T - R	
Control:		Uncontrolled		Uncontrolled		Stop Sign		Stop Sign	
Rights:		Include		Include		Include		Include	
Lanes:		0 0 2 1 0		0 0 0 1 0		0 1 0 0 0		0 1 0 0 0	
-----									
Volume Module:									
Base Vol:		0 2303		0 0 0 0		0 6 0		0 6 0	
Growth Adj:		1.13 1.12		1.10 1.13 1.18		1.16 1.00 1.00		1.00 1.00 1.00 1.00	
Initial Bse:		0 2569		0 0 0 0		0 6 0		0 6 0	
Added Vol:		0 121		18 0 137 33		45 84		0 13 62 0	
PasserByVol:		0 18		-18 0 -137 -33		-45 -84		0 -13 -62 0	
Initial Fut:		0 2708		0 0 0 0		0 6 0		0 6 0	
User Adj:		1.00 1.00		1.00 1.00 1.00		1.00 1.00		1.00 1.00 1.00 1.00	
PHF Adj:		0.98 0.98		0.98 0.98 0.98		0.98 0.98		0.98 0.98 0.98 0.98	
PHF Volume:		0 2763		0 0 0 0		0 6 0		0 6 0	
Reduct Vol:		0 0		0 0 0 0		0 0 0		0 0 0 0	
FinalVolume:		0 2763		0 0 0 0		0 6 0		0 6 0	
-----									
Critical Gap Module:									
Critical Gap:xxxxxx		xxxxxx xxxxxx xxxxx xxxxxx		7.5 5.5 xxxxxx		7.5 5.5 xxxxxx			
FollowUpTm:xxxxxx		xxxxxx xxxxx xxxxxx xxxxxx		3.5 4.0 xxxxxx		3.5 4.0 xxxxxx			
-----									
Capacity Module:									
Conflict Vol:		xxxxxx xxxxx xxxxxx		xxxxxx xxxxx xxxxxx		924 2763 xxxxxx		2766 2763 xxxxxx	
Potent Cap.:		xxxxxx xxxxx xxxxxx		xxxxxx xxxxx xxxxxx		224 41 xxxxxx		9 41 xxxxxx	
Move Cap.:		xxxxxx xxxxx xxxxxx		xxxxxx xxxxx xxxxxx		199 41 xxxxxx		8 41 xxxxxx	
Volume/Cap:		xxxxxx xxxxx xxxxxx		xxxxxx xxxxx xxxxxx		0.00 0.15 xxxxx		0.00 0.15 xxxxx	
-----									
Level Of Service Module:									
2Way95thQ:		xxxxxx xxxxx xxxxxx		xxxxxx xxxxx xxxxxx		xxxxxx xxxxx xxxxxx		xxxxxx xxxxx xxxxxx	
Control Del:		xxxxxx xxxxx xxxxxx		xxxxxx xxxxx xxxxxx		xxxxxx xxxxx xxxxxx		xxxxxx xxxxx xxxxxx	
LDS by Move:		* * *		* * *		* * *		* * *	
Movement:		LT - LTR - RT		LT - LTR - RT		LT - LTR - RT		LT - LTR - RT	
Shared Cap:		xxxxxx xxxxx xxxxxx		xxxxxx xxxxx xxxxxx		41 xxxxx xxxxxx		41 xxxxx xxxxxx	
SharedQueue:		xxxxxx xxxxx xxxxxx		xxxxxx xxxxx xxxxxx		0.5 xxxxx xxxxxx		0.5 xxxxx xxxxxx	
Shrd ConDel:		xxxxxx xxxxx xxxxxx		xxxxxx xxxxx xxxxxx		107.0 xxxxx xxxxxx		107.0 xxxxx xxxxxx	
Shared LDS:		* * *		* * *		F * *		F * *	
ApproachDel:		xxxxxxx		xxxxxxx		107.0		107.0	
ApproachLOS:		*		*		F		F	
-----									
Note: Queue reported is the number of cars per lane.									

Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to DMJM HARRIS, OAKLAND, CA

MITIG8 - Tier 4b AM		Mon Jan 11, 2010 10:12:39				Page 1-1			
19th Ave CS									
Tier 4b									
Level Of Service Computation Report									
2000 HCM Unsignalized Method (Future Volume Alternative)									
Intersection #1130 19th / Rossmoor									
Average Delay (sec/veh):		0.4		Worst Case Level Of Service: F[ 58.6]					
Street Name: 19th Eucalyptus									
Approach:		North Bound		South Bound		East Bound		West Bound	
Movement:		L - T - R		L - T - R		L - T - R		L - T - R	
Control:		Uncontrolled		Uncontrolled		Stop Sign		Stop Sign	
Rights:		Include		Include		Include		Include	
Lanes:		0 0 2 1 0		0 0 2 1 0		1 1 0 1 0		0 1 0 0 0	
Volume Module:									
Base Vol:		0 1869		0 0 0 0		0 7 0 0		0 7 0 0	
Growth Adj:		1.16 1.14		1.16 1.14 1.09 1.14		1.00 1.00 1.00		1.00 1.00 1.00	
Initial Bse:		0 2124		0 0 0 0		0 7 0 0		0 7 0 0	
Added Vol:		0 105		3 0 19 16		8 14 0 7		7 30 0 0	
PasserByVol:		0 3		-3 -0 -19 -16		-8 -14 0 0		-7 -30 0 0	
Initial Fut:		0 2232		0 0 0 0		0 7 0 0		7 7 0 0	
User Adj:		1.00 1.00		1.00 1.00 1.00		1.00 1.00 1.00		1.00 1.00 1.00	
PHF Adj:		0.98 0.98		0.98 0.98 0.98		0.98 0.98 0.98		0.98 0.98 0.98	
PHF Volume:		0 2278		0 0 0 0		0 7 0 0		0 7 0 0	
Reduct Vol:		0 0		0 0 0 0		0 0 0 0		0 0 0 0	
FinalVolume:		0 2278		0 0 0 0		0 7 0 0		0 7 0 0	
Critical Gap Module:									
Critical Gap:		xxxxxx xxxxx xxxxx xxxxx		7.5 5.5 6.9		7.5 5.5 xxxxxx			
FollowUpTim:		xxxxxx xxxxx xxxxx xxxxx		3.5 4.0 3.3		3.5 4.0 xxxxxx			
Capacity Module:									
Conflict Vol:		xxxxxx xxxxx xxxxx		763 2278		0 2281 2278 xxxxxx			
Potent Cap:		xxxxxx xxxxx xxxxx		294 74 1084		21 74 xxxxxx			
Move Cap:		xxxxxx xxxxx xxxxx		272 74 1084		20 74 xxxxxx			
Volume/Cap:		xxxxxx xxxxx xxxxx		0.00 0.10 0.00		0.00 0.10 xxxxx			
Level Df Service Module:									
2Way95thQ:		xxxxxx xxxxx xxxxx xxxxx xxxxx xxxxx		xxxxxx xxxxx xxxxx xxxxx xxxxx xxxxx					
Control Del:		xxxxxx xxxxx xxxxx xxxxx xxxxx xxxxx		xxxxxx xxxxx xxxxx xxxxx xxxxx xxxxx					
LOS by Move:		* * *		* * *					
Movement:		LT - LTR - RT		LT - LTR - RT		LT - LTR - RT		LT - LTR - RT	
Shared Cap:		xxxxxx xxxxx xxxxx xxxxx xxxxx xxxxx		74 xxxxx 74		74 xxxxx xxxxxx			
SharedQueue:		xxxxxx xxxxx xxxxx xxxxx xxxxx xxxxx		0.3 xxxxx 0.3		0.3 xxxxx xxxxxx			
Shrd ConDel:		xxxxxx xxxxx xxxxx xxxxx xxxxx xxxxx		58.6 xxxxx 58.6		58.6 xxxxx xxxxxx			
Shared LDS:		* * *		F * *		F * *			
ApproachDel:		xxxxxxx		58.6		58.6			
ApproachLOS:		*		F		F			
Note: Queue reported is the number of cars per lane.									

Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to DMJM HARRIS, OAKLAND, CA

MITIG8 - Tier 4b PM		Mon Jan 11, 2010 10:13:01				Page 1-1			
19th Ave CS									
Tier 4b									
Level Df Service Computation Report									
2000 HCM Unsignalized Method (Future Volume Alternative)									
Intersection #1130 19th / Rossmoor									
Average Delay (sec/veh):		0.5		Worst Case Level Of Service: F[107.0]					
Street Name: 19th Eucalyptus									
Approach:		North Bound		South Bound		East Bound		West Bound	
Movement:		L - T - R		L - T - R		L - T - R		L - T - R	
Control:		Uncontrolled		Uncontrolled		Stop Sign		Stop Sign	
Rights:		Include		Include		Include		Include	
Lanes:		0 0 2 1 0		0 0 0 1 0		0 1 0 0 0		0 1 0 0 0	
Volume Module:									
Base Vol:		0 2303 0		0 0 0 0		0 0 6 0		0 0 6 0	
Growth Adj:		1.13 1.12		1.10 1.13 1.18 1.16		1.00 1.00 1.00		1.00 1.00 1.00	
Initial Bse:		0 2569 0		0 0 0 6		0 0 6 0		0 6 0 0	
Added Vol:		0 121 18		0 137 33		45 84		0 13 62 0	
PasserByVol:		0 18 -18		0 -137 -33		-45 -84		0 -13 -62 0	
Initial Fut:		0 2708 0		0 0 0 0		0 6 0 0		0 6 0 0	
User Adj:		1.00 1.00 1.00		1.00 1.00 1.00		1.00 1.00 1.00		1.00 1.00 1.00	
PHF Adj:		0.98 0.98 0.98		0.98 0.98 0.98		0.98 0.98 0.98		0.98 0.98 0.98	
PHF Volume:		0 2763 0		0 0 0 0		0 6 0 0		0 6 0 0	
Reduct Vol:		0 0 0 0 0 0		0 0 0 0		0 0 0 0		0 0 0 0	
Final Volume:		0 2763 0		0 0 0 0		0 6 0 0		0 6 0 0	
Critical Gap Module:									
Critical Gap:XXXXXX XXXX XXXX XXXX XXXX XXXX		7.5 5.5 XXXXXX		7.5 5.5 XXXXXX		7.5 5.5 XXXXXX		7.5 5.5 XXXXXX	
FollowUpPtim:XXXXXX XXXX XXXX XXXX XXXX XXXX		3.5 4.0 XXXXXX		3.5 4.0 XXXXXX		3.5 4.0 XXXXXX		3.5 4.0 XXXXXX	
Capacity Module:									
Cnflct Vol: XXXX XXXX XXXX XXXX XXXX XXXX XXXX		924 2763 XXXXXX		2766 2763 XXXXXX		2766 2763 XXXXXX		2766 2763 XXXXXX	
Potent Cap: XXXX XXXX XXXX XXXX XXXX XXXX XXXX		224 41 XXXXXX		9 41 XXXXXX		8 41 XXXXXX		8 41 XXXXXX	
Move Cap: XXXX XXXX XXXX XXXX XXXX XXXX XXXX		199 41 XXXXXX		8 41 XXXXXX		8 41 XXXXXX		8 41 XXXXXX	
Volume/Cap: XXXX XXXX XXXX XXXX XXXX XXXX XXXX		0.00 0.15 XXXX		0.00 0.15 XXXX		0.00 0.15 XXXX		0.00 0.15 XXXX	
Level Df Service Module:									
2Way95thQ: XXXX XXX									

MITIG8 - Tier 4c AM Mon Jan 11, 2010 10:13:48 Page 1-1

19th Ave CS  
Tier 4c

Level Of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1130 19th / Rossmoor

Average Delay (sec/veh): 0.4 Worst Case Level Of Service: F[ 58.6]

Street Name: 19th Eucalyptus

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign

Rights: Include Include Include Include

Lanes: 0 0 2 1 0 0 0 0 1 0 0 0 0 1 0 0 0

Volume Module:

Base Vol: 0 1869 0 0 0 0 0 7 0 0 7 0

Growth Adj: 1.16 1.14 1.16 1.14 1.09 1.14 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 0 2124 0 0 0 0 0 7 0 0 7 0

Added Vol: 0 105 3 0 19 16 8 14 0 7 30 0

PasserByVol: 0 3 -3 0 -19 -16 -8 -14 0 -7 -30 0

Initial Fut: 0 2232 0 0 0 0 0 7 0 0 7 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 2278 0 0 0 0 0 7 0 0 7 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

FinalVolume: 0 2278 0 0 0 0 0 7 0 0 7 0

Critical Gap Module:

Critical Gp:xxxxxx xxxxx xxxxxx xxxxx xxxxx 7.5 5.5 xxxxxx 7.5 5.5 xxxxxx

FollowUpTim:xxxxxx xxxxx xxxxxx xxxxx xxxxxx 3.5 4.0 xxxxxx 3.5 4.0 xxxxxx

Capacity Module:

Conflict Vol: xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx 763 2278 xxxxxx 2281 2278 xxxxxx

Potent Cap.: xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx 294 74 xxxxxx 21 74 xxxxxx

Move Cap.: xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx 272 74 xxxxxx 20 74 xxxxxx

Volume/Cap: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx 0.00 0.10 xxxxx 0.00 0.10 xxxxx

Level Of Service Module:

2Way95thQ: xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx

Control Del:xxxxxx xxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxx xxxxx xxxxxx

LOS by Move: \* \* \* \* \*

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx 74 xxxxx xxxxxx 74 xxxxx xxxxxx

SharedQueue:xxxxxx xxxxx xxxxxx xxxxxx xxxxx xxxxxx 0.3 xxxxx xxxxxx 0.3 xxxxx xxxxxx

Shrd ConDel:xxxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx 58.6 xxxxx xxxxxx 58.6 xxxxx xxxxxx

Shared LOS: \* \* \* \* \*

ApproachDel: xxxxxx xxxxxx 58.6 58.6

ApproachLOS: \* \* F F

Note: Queue reported is the number of cars per lane.

Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to DMJM HARRIS, OAKLAND, CA

MITIG8 - Tier 4c PM Mon Jan 11, 2010 10:14:01 Page 1-1

19th Ave CS  
Tier 4c

Level Of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1130 19th / Rossmoor

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: F[107.0]

Street Name: 19th Eucalyptus

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign

Rights: Include Include Include Include

Lanes: 0 0 2 1 0 0 0 0 1 0 0 0 0 1 0 0 0

Volume Module:

Base Vol: 0 2303 0 0 0 0 0 6 0 0 6 0

Growth Adj: 1.13 1.12 1.10 1.13 1.18 1.16 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 0 2569 0 0 0 0 0 6 0 0 6 0

Added Vol: 0 121 18 0 137 33 45 84 0 13 62 0

PasserByVol: 0 18 -18 0 -137 -33 -45 -84 0 -13 -62 0

Initial Fut: 0 2708 0 0 0 0 0 6 0 0 6 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 2763 0 0 0 0 0 6 0 0 6 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

FinalVolume: 0 2763 0 0 0 0 0 6 0 0 6 0

Critical Gap Module:

Critical Gp:xxxxxx xxxxx xxxxx xxxxxx 7.5 5.5 xxxxxx 7.5 5.5 xxxxxx

FollowUpTim:xxxxxx xxxxx xxxxxx xxxxxx xxxxxx xxxxxx 3.5 4.0 xxxxxx 3.5 4.0 xxxxxx

Capacity Module:

Conflict Vol: xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx 924 2763 xxxxxx 2766 2763 xxxxxx

Potent Cap.: xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx 224 41 xxxxxx 9 41 xxxxxx

Move Cap.: xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx 199 41 xxxxxx 8 41 xxxxxx

Volume/Cap: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx 0.00 0.15 xxxxx 0.00 0.15 xxxxx

Level Of Service Module:

2Way95thQ: xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx

Control Del:xxxxxx xxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxx xxxxx xxxxxx

LOS by Move: \* \* \* \* \*

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx 41 xxxxx xxxxxx 41 xxxxx xxxxxx

SharedQueue:xxxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx 0.5 xxxxx xxxxxx 0.5 xxxxx xxxxxx

Shrd ConDel:xxxxxx xxxxx xxxxxx xxxxx xxxxx xxxxxx 107.0 xxxxx xxxxxx 107.0 xxxxx xxxxxx

Shared LOS: \* \* \* \* \*

ApproachDel: xxxxxx xxxxxx 107.0 107.0

ApproachLOS: \* \* F F

Note: Queue reported is the number of cars per lane.

Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to DMJM HARRIS, OAKLAND, CA





## **APPENDIX I.     HIGH-OCCUPANCY TOLL (HOT) LANE ANALYSIS**

---



**Table A: Comparison of Southbound Only Level of Service**

	Southbound Level of Service															
	Southbound Mixed Flow Lanes				Transit Lane Only				Weighted Average <sup>1</sup>				Current Configuration			
	AM Delay	LOS	PM Delay	LOS	AM Delay	LOS	PM Delay	LOS	AM Delay	LOS	PM Delay	LOS	AM Delay	LOS	PM Delay	LOS
<b>Tier 4A</b>																
19th Avenue/Holloway	70.6	E	91.1	F	8.1	A	7.6	A	55.0	D	70.2	E	93.4	F	127.0	F
19th Avenue/Crespi	60.9	E	56.5	E	4.9	A	2.5	A	46.9	D	43.0	D	72.9	E	67.5	E
Junipero Serra/19th Ave	51.9	D	54.1	D	6.5	A	5.8	A	40.6	D	42.0	D	80.9	F	132.2	F
<b>Tier 4B</b>																
19th Avenue/Holloway	70.6	E	89.5	F	8.1	A	7.5	A	55.0	D	69.0	E	44.1	D	80.4	F
19th Avenue/Crespi	65.4	E	64.4	E	4.9	A	2.5	A	50.3	D	48.9	D	72.9	E	67.5	E
Junipero Serra/19th Ave	52.2	D	54.1	D	6.6	A	5.8	A	40.8	D	42.0	D	81.2	F	132.2	F
<b>Tier 4C</b>																
19th Avenue/Holloway	163.0	F	212.0	F	13.1	B	12.1	B	125.5	F	162.0	F	44.1	D	80.4	F
19th Avenue/Crespi	102.0	F	123.0	F	7.0	A	6.6	A	78.3	E	93.9	F	19.1	B	24.4	C
Junipero Serra/19th Ave	62.0	E	78.7	E	10.8	B	10.1	B	49.2	D	61.6	E	23.7	C	41.5	D

Notes:

<sup>1</sup> Weighted LOS average of southbound 19th Avenue mixed-flow lanes and southbound 19th Avenue transit lane (HOT).

**Table B: Comparison of Overall Intersection Level of Service**

	Overall Intersection Level of Service							
	HOT Configuration <sup>2</sup>				Current Configuration			
	AM Delay	LOS	PM Delay	LOS	AM Delay	LOS	PM Delay	LOS
<b>Tier 4A</b>								
19th Avenue/Holloway	40.2	D	68.2	E	57.9	E	94.3	F
19th Avenue/Crespi	61.5	E	60.7	E	75.8	E	74.7	E
Junipero Serra/19th Ave	54.3	D	70.1	E	68.8	E	102.0	F
<b>Tier 4B</b>								
19th Avenue/Holloway	67.2	E	85.6	F	62.2	E	94.9	F
19th Avenue/Crespi	61.5	E	60.7	E	75.8	E	74.7	E
Junipero Serra/19th Ave	54.5	D	70.1	E	69.1	E	102.0	F
<b>Tier 4C</b>								
19th Avenue/Holloway	99.3	F	123.2	F	61.5	E	85.1	F
19th Avenue/Crespi	105.8	F	124.7	F	74.1	E	87.1	F
Junipero Serra/19th Ave	66.6	E	97.6	F	57.4	E	90.6	F



**Table C: Southbound 19th Avenue Mixed-Flow vs. HOT Lane Volumes**

	Overall Intersection Level of Service			
	HOT Lane Volumes		Southbound Mixed Flow Volumes	
	AM	PM	AM	PM
<b>Tier 4A</b>				
19th Avenue/Holloway	89	180	3250	3576
19th Avenue/Crespi	13	6	3444	3838
Junipero Serra/19th Ave	600	600	2864	2945
<b>Tier 4B</b>				
19th Avenue/Holloway	89	180	3250	3576
19th Avenue/Crespi	13	6	3444	3838
Junipero Serra/19th Ave	600	600	2864	2945
<b>Tier 4C</b>				
19th Avenue/Holloway	69	116	3270	3640
19th Avenue/Crespi	13	6	3425	3838
Junipero Serra/19th Ave	600	600	2964	2945

## Analysis for Non-HOT Lanes

19th Ave CS  
Tier 4A - HOT Analysis

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1070 Junipero Serra Blvd./19th Avenue  
Cycle (sec): 110 Critical Vol./Cap. (X): 0.916  
Loss Time (sec): 0 Average Delay (sec/veh): 55.6  
Optimal Cycle: 180 Level Of Service: E

Street Name: Junipero Serra Blvd.  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Split Phase Split Phase Split Phase Split Phase  
Rights: Include Include Ovl Include Include  
Min. Green: 46 46 18 18 18 9 9 9 9 9 9 9  
YPR: 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0  
Lanes: 3 0 1 0 0 4 0 1 0 0 1 0 3 0 0 0 1 0

Volume Module:  
Base Vol: 2555 2016 12 0 1320 4 0 99 3464 0 63 85  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial 8se: 2555 2016 12 0 1320 4 0 99 3464 0 63 85  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
HOT: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 2555 2016 12 0 1320 4 0 99 2864 0 63 85  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 2607 2057 12 0 1347 0 0 101 2922 0 64 87  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 2607 2057 12 0 1347 0 0 101 2922 0 64 87  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MUF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Final Volume: 2607 2057 12 0 1347 0 0 101 2922 0 64 87

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adj/Adj: 1.01 0.95 0.95 1.00 0.91 1.00 1.00 1.00 0.71 1.00 0.92 0.92  
Lanes: 3.00 1.99 0.01 0.00 4.00 1.00 0.00 1.00 3.00 0.00 0.43 0.57  
Final Sat.: 5778 3585 21 0 6916 1900 0 1900 4050 0 747 1007

Capacity Analysis Module:  
Vol/Sat: 0.45 0.57 0.57 0.00 0.19 0.00 0.00 0.05 0.72 0.00 0.09 0.09  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.50 0.50 0.50 0.21 0.21 0.21 0.12 0.12 0.67 0.12 0.12 0.12  
Volume/Cap: 0.91 1.16 1.16 0.00 0.94 0.00 0.00 0.43 1.08 0.00 0.69 0.69  
Delay/Veh: 25.2 98.8 98.8 0.0 55.6 0.0 0.0 50.2 51.9 0.0 63.0 63.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 25.2 98.8 98.8 0.0 55.6 0.0 0.0 50.2 51.9 0.0 63.0 63.0  
LOS by Move: C F A E A A A D A A E E  
HCM2RAvgQ: 30 57 57 0 16 0 0 3 52 0 6 6  
Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4A - HOT Analysis

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1160 19th Avenue/Holloway Avenue  
Cycle (sec): 110 Critical Vol./Cap. (X): 0.834  
Loss Time (sec): 0 Average Delay (sec/veh): 46.0  
Optimal Cycle: 87 Level Of Service: D

Street Name: 19th Avenue  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 50 50 50 48 48 48 31 31 31 31 31 31  
YPR: 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0  
Lanes: 0 0 2 1 0 0 0 3 0 1 0 1 0 1 0 1 0

Volume Module:  
Base Vol: 0 2630 133 0 3339 166 132 210 149 35 407 53  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial 8se: 0 2630 133 0 3339 166 132 210 149 35 407 53  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Transit-cre: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2630 133 0 3250 166 132 210 149 35 407 53  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2684 136 0 3316 169 135 214 152 36 415 54  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2684 136 0 3316 169 135 214 152 36 415 54  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MUF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Final Volume: 0 2684 136 0 3316 169 135 214 152 36 415 54

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adj/Adj: 1.00 0.95 0.90 1.00 0.96 0.85 0.59 0.59 0.59 0.82 0.82 0.82  
Lanes: 0.00 2.85 0.15 0.00 3.00 1.00 0.54 0.85 0.61 0.14 1.65 0.21  
Final Sat.: 0 5136 260 0 5446 1615 598 951 675 221 2570 335

Capacity Analysis Module:  
Vol/Sat: 0.00 0.52 0.52 0.00 0.61 0.10 0.23 0.23 0.23 0.16 0.16 0.16  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.55 0.55 0.55 0.55 0.55 0.55 0.35 0.35 0.35 0.35 0.35 0.35  
Volume/Cap: 0.00 0.95 0.95 0.00 1.11 0.19 0.65 0.65 0.65 0.46 0.46 0.46  
Delay/Veh: 0.0 24.3 24.3 0.0 70.6 9.0 34.3 34.3 34.3 29.3 29.3 29.3  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 24.3 24.3 0.0 70.6 9.0 34.3 34.3 34.3 29.3 29.3 29.3  
LOS by Move: A C C A E A C C C C C C  
HCM2RAvgQ: 0 30 28 0 59 2 8 8 7 7 7 7  
Note: Queue reported is the number of cars per lane.



Tier 4a AM	Mon Jan 11, 2010 15:17:20	Page 4-1
Tier 4A - HOT Analysis		
Level Of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1170 19th Avenue/Crespi Drive		
Cycle (sec):	110	Critical Vol./Cap.(X): 0.734
Loss Time (sec):	0	Average Delay (sec/veh): 65.4
Optimal Cycle:	75	Level Of Service: E
Street Name: 19th Avenue Crespi Drive		
Approach: North Bound South Bound East Bound West Bound		
Movement: L - T - R L - T - R L - T - R L - T - R		
Control:	Permitted	Permitted
Rights:	Include	Ignore
Min. Green:	48 48 48 53 53 53	22 22 22 22 0 0 0
Y+R:	4.0 4.0 4.0 4.0 4.0 4.0	4.0 4.0 4.0 4.0 4.0 4.0
Lanes:	0 0 3 0 0 0	0 0 3 0 1 0 0 0 0
Volume Module:		
Base Vol:	0 2637 0 0 3444 80 106 0 108 0 0 0	0 0 0 0 0 0
Growth Adj:	1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse:	0 2637 0 0 3444 80 106 0 108 0 0 0	0 0 0 0 0 0
Added Vol:	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0
Transit:	0 0 0 0 -19 0 0 0 0 0 0 0	0 0 0 0 0 0
Initial Fut:	0 2637 0 0 3425 80 106 0 108 0 0 0	0 0 0 0 0 0
User Adj:	1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98 0.98 0.98 0.98	0.98 0.98 0.98 0.98 0.98 0.98
PHF Volume:	0 2691 0 0 3495 0 108 0 110 0 0 0	0 0 0 0 0 0
Reduc Vol:	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0
Reduced Vol:	0 2691 0 0 3495 0 108 0 110 0 0 0	0 0 0 0 0 0
PCE Adj:	1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
Final Volume:	0 2691 0 0 3495 0 108 0 110 0 0 0	0 0 0 0 0 0
Saturation Flow Module:		
Sat/Lane:	1900 1900 1900 1900 1900 1900	1900 1900 1900 1900 1900 1900
Adjustment:	1.00 0.91 1.00 1.00 0.91 1.00	0.95 1.00 0.85 1.00 1.00 1.00
Lanes:	0.00 3.00 0.00 0.00 3.00 1.00	1.00 0.00 1.00 0.00 0.00 0.00
Final Sat:	0 5187 0 0 5187 1900	1805 0 1615 0 0 0
Capacity Analysis Module:		
Vol/Sat:	0.00 0.52 0.00 0.00 0.67 0.00	0.06 0.00 0.07 0.00 0.00 0.00
Crit Moves:	0.47 0.47 0.47 0.61 0.61 0.61	0.29 0.29 0.29 0.29 0.00 0.00
Green/Cycle:	0.47 0.47 0.47 0.61 0.61 0.61	0.29 0.29 0.29 0.29 0.00 0.00
Volume/Cap:	0.00 1.10 0.00 0.00 1.10 0.00	0.21 0.00 0.23 0.00 0.00 0.00
Delay/Veh:	0.0 74.0 0.0 0.0 60.9 0.0	30.2 0.0 30.7 0.0 0.0 0.0
User DelAdj:	1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh:	0.0 74.0 0.0 0.0 60.9 0.0	30.2 0.0 30.7 0.0 0.0 0.0
LOS by Move:	A E A A E A C A C A C A A A	A A A A A A A A A A A A
HCM2kV9Q:	0 48 0 0 55 0 3 0 3 0 0 0	0 0 0 0 0 0 0 0 0 0 0
Note: Queue reported is the number of cars per lane.		
Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES		

Tier 4A - HOT Analysis									
19th Ave CS									
Level of Service Computation Report									
2000 HCM Operations Method (Future Volume Alternative)									
Intersection #1070 Junipero Serra Blvd./19th Avenue									
Cycle (sec):	120	Critical Vol./Cap.(X):		1.110					
Loss Time (sec):	17	Average Delay (sec/veh):		69.9					
Optimal Cycle:	180	Level of Service:		E					
Street Name: Junipero Serra Blvd. 19th Avenue									
Approach: North Bound South Bound East Bound West Bound									
Movement: L - T - R L - T - R L - T - R L - T - R									
Control: Split Phase Split Phase Permitted Permitted									
Rights: Ignore Ignore Ovl Include									
Min. Green: 54 54 20 20 9 9 9 9 9 9									
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0									
Lanes: 3 0 1 0 0 4 0 1 0 0 1 0 3 0 0 1 0									
Volume Module:									
Base Vol: 2719 2037 29 0 1429 19 0 161 3545 0 51 80									
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00									
Initial Bse: 2719 2037 29 0 1429 19 0 161 3545 0 51 80									
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0									
HOT: 0 0 0 0 0 0 0 0 -600 0 0 0									
Initial Fut: 2719 2037 29 0 1429 19 0 161 2945 0 51 80									
User Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00									
PHF Adj: 0.98 0.98 0.00 0.98 0.98 0.00 0.98 0.98 0.98 0.98									
PHF Volume: 2774 2079 0 0 1458 0 0 164 3005 0 52 82									
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0									
Reduced Vol: 2774 2079 0 0 1458 0 0 164 3005 0 52 82									
PCE Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00									
MLF Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00									
FinalVolume: 2774 2079 0 0 1458 0 0 164 3005 0 52 82									
Saturation Flow Module:									
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900									
Adj: 0.92 0.95 0.95 1.00 0.91 1.00 1.00 1.00 0.71 1.00									
Lanes: 3.00 2.00 0.00 0.00 4.00 1.00 0.00 1.00 3.00 0.00									
Final Sat.: 5253 3610 0 0 6916 1900 0 1900 4050 0 679 1065									
Capacity Analysis Module:									
Vol/Sat: 0.53 0.58 0.00 0.00 0.21 0.00 0.00 0.09 0.74 0.00									
Cvt Moves: 0.53 0.58 0.00 0.00 0.21 0.00 0.00 0.08 0.08 0.00									
Green/Cycle: 0.50 0.50 0.50 0.20 0.20 0.20 0.14 0.14 0.68 0.14									
Volume/Cap: 1.06 1.15 0.00 0.00 1.05 0.00 0.62 1.09 0.00 0.55									
Delay/Veh: 57.8 98.1 0.0 0.0 87.9 0.0 0.0 58.9 54.1 0.0									
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00									
AdjDel/Veh: 57.8 98.1 0.0 0.0 87.9 0.0 0.0 58.9 54.1 0.0									
LOS by Move: E F A A F A A E D A E									
HCM2kAvgQ: 46 60 0 0 22 0 0 6 57 0 5									
Note: Queue reported is the number of cars per lane.									

Tier 4A - HOT Analysis									
19th Ave CS									
Level of Service Computation Report									
2000 HCM Operations Method (Future Volume Alternative)									
Intersection #1160 19th Avenue/Holloway Avenue									
Cycle (sec):	120	Critical Vol./Cap.(X):		1.001					
Loss Time (sec):	0	Average Delay (sec/Veh):		74.4					
Optimal Cycle:	180	Level of Service:		E					
Street Name: 19th Avenue Holloway Avenue									
Approach: North Bound South Bound East Bound West Bound									
Movement: L - T - R L - T - R L - T - R L - T - R									
Control: Permitted Permitted Permitted Permitted Permitted Permitted									
Rights: Include Include Include Include Include Include									
Min. Green: 0 59 59 0 59 59 33 33 33 30 30 30									
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0									
Lanes: 0 2 1 0 0 3 0 1 0 0 1 0 0 1 0 1 0 1 0 1 0 1 0									
Volume Module:									
Base Vol: 0 2823 130 0 3756 250 161 221 158 130 518 52									
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00									
Initial Bse: 0 2823 130 0 3756 250 161 221 158 130 518 52									
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0									
Transit+cre: 0 0 0 0 -180 0 0 0 0 0 0 0									
Initial Fut: 0 2823 130 0 3576 250 161 221 158 130 518 52									
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00									
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98									
PHF Volume: 0 2881 133 0 3649 255 164 226 161 133 529 53									
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0									
Reduced Vol: 0 2881 133 0 3649 255 164 226 161 133 529 53									
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00									
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00									
FinalVolume: 0 2881 133 0 3649 255 164 226 161 133 529 53									
Saturation Flow Module:									
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900									
Adjustment: 1.00 0.95 0.90 1.00 0.96 0.85 0.48 0.48 0.48 0.57 0.57 0.57									
Lanes: 0.00 2.86 0.14 0.00 3.00 1.00 0.60 0.82 0.58 0.37 0.48 0.15									
Final Sat.: 0 5159 238 0 5446 1615 547 751 537 401 1598 160									
Capacity Analysis Module:									
Vol/Sat: 0.00 0.56 0.56 0.00 0.67 0.16 0.30 0.30 0.30 0.33 0.33 0.33									
Crit Moves: 0.00 0.56 0.56 0.00 0.67 0.16 0.30 0.30 0.30 0.33 0.33 0.33									
Green/Cycle: 0.58 0.58 0.58 0.58 0.58 0.58 0.26 0.26 0.26 0.26 0.26 0.26									
Volume/Cap: 0.00 0.97 0.97 0.00 1.16 0.27 1.15 1.15 1.15 1.26 1.26 1.26									
Delay/Veh: 0.0 25.0 25.0 0.0 91.1 8.6 132.3 132 132.3 176.6 177 176.6									
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00									
AdjDel/Veh: 0.0 25.0 25.0 0.0 91.1 8.6 132.3 132 132.3 176.6 177 176.6									
LOS by Move: A C C A F A F F F F F F F F F									
HCM2kAvgQ: 0 36 34 0 73 3 18 18 18 26 26 26									
Note: Queue reported is the number of cars per lane.									

Tier 4a PM Mon Jan 11, 2010 15:18:20 19th Ave CS Tier 4A - HOT Analysis Page 4-1

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1170 19th Avenue/Crespi Drive

Cycle (sec): 120 Critical Vol./Cap.(X): 0.788  
Loss Time (sec): 0 Average Delay (sec/veh): 64.4  
Optimal Cycle: 88 Level of Service: E

Street Name: 19th Avenue Crespi Drive  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Ignored Split Phase Split Phase  
Rights: 59 59 0 64 64 21 0 21 0 0 0  
Min. Green: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Y+R: 0 0 3 0 0 0 3 0 1 1 0 0 1 0 0 0 0  
Lanes: 0 0 3 0 0 0 3 0 1 1 0 0 1 0 0 0 0

Volume Module:  
Base Vol: 0 2870 0 0 3850 191 59 0 114 0 0 0  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 0 2870 0 0 3850 191 59 0 114 0 0 0  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0  
Transit: 0 0 0 0 -12 0 0 0 0 0 0  
Initial Fut: 0 2870 0 0 3838 191 59 0 114 0 0 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2929 0 0 3916 0 60 0 0 0 0  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2929 0 0 3916 0 60 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Final Volume: 0 2929 0 0 3916 0 60 0 0 0 0

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.91 1.00 1.00 0.91 1.00 0.95 1.00 1.00 1.00 1.00  
Lanes: 0.00 3.00 0.00 0.00 3.00 1.00 1.00 0.00 1.00 0.00 0.00  
Final Sat.: 0 5187 0 0 5187 1900 1805 0 1900 0 0

Capacity Analysis Module:  
Vol/Sat: 0.00 0.56 0.00 0.00 0.76 0.00 0.03 0.00 0.00 0.00 0.00  
Crit Moves: Green/Cycle: 0.51 0.51 0.51 0.69 0.69 0.28 0.28 0.28 0.00 0.00 0.00  
Volume/Cap: 0.00 1.11 0.00 0.00 1.10 0.00 0.12 0.00 0.00 0.00 0.00  
Delay/Veh: 0.0 75.6 0.0 0.0 56.5 0.0 33.1 0.0 0.0 0.0 0.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 75.6 0.0 0.0 56.5 0.0 33.1 0.0 0.0 0.0 0.0  
LOS by Move: A A A A A C A A A A A  
HCM2kAvgQ: 0 55 0 0 66 0 2 0 0 0 0

Note: Queue reported is the number of cars per lane.

Traffic 8.0.0715 (c) 2008 Gowing Assoc. Licensed to AECOM, LOS ANGELES



----- 19th Ave CS -----  
 Tier 4b - HOT Mixed Flow Lanes Analysis  
 Level Of Service Computation Report  
 2000 HCM Operations Method (Future Volume Alternative)  
 \*\*\*\*\*  
 Intersection #1070 Junipero Serra Blvd./19th Avenue  
 \*\*\*\*\*  
 Cycle (sec): 110 Critical Vol./Cap. (X): 0.916  
 Loss Time (sec): 0 Average Delay (sec/veh): 55.8  
 Optimal Cycle: 180 Level Of Service: E  
 \*\*\*\*\*  
 Street Name: Junipero Serra Blvd. 19th Avenue  
 Approach: North Bound South Bound East Bound West Bound  
 Movement: L - T - R L - T - R L - T - R L - T - R  
 Control: Split Phase Split Phase Permitted Permitted  
 Rights: Include Ignore Ovl Include  
 Min. Green: 46 46 18 18 18 9 9 9 9  
 Y+R: 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0  
 Lanes: 3 0 1 1 0 0 0 4 0 1 0 0 1 0 3 0 0 0 1 0  
 \*\*\*\*\*  
 Volume Module:  
 Base Vol: 2555 2016 12 0 1320 4 0 101 3464 0 63 85  
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 Initial Bse: 2555 2016 12 0 1320 4 0 101 3464 0 63 85  
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
 HOT: 0 0 0 0 0 0 0 0 0 0 0 0  
 Initial Fut: 2555 2016 12 0 1320 4 0 101 2864 0 63 85  
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
 PHF Volume: 2607 2057 12 0 1347 0 0 103 2922 0 64 87  
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
 Reduced Vol: 2607 2057 12 0 1347 0 0 103 2922 0 64 87  
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 MLE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 FinalVolume: 2607 2057 12 0 1347 0 0 103 2922 0 64 87  
 \*\*\*\*\*  
 Saturation Flow Module:  
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900  
 Adjustment: 1.01 0.95 0.95 1.00 0.91 1.00 1.00 0.71 1.00 0.92 0.92  
 Lanes: 3.00 1.99 0.01 0.00 4.00 1.00 0.00 1.00 3.00 0.00 0.43 0.57  
 Final Sat.: 5778 3585 21 0 6916 1900 0 1900 4050 0 747 1007  
 \*\*\*\*\*  
 Capacity Analysis Module:  
 Vol/Sat: 0.45 0.57 0.57 0.00 0.19 0.00 0.00 0.05 0.72 0.00 0.09 0.09  
 Crit Moves: \*\*\*\*  
 Green/Cycle: 0.50 0.50 0.50 0.21 0.21 0.12 0.12 0.67 0.12 0.12 0.12  
 Volume/Cap: 0.91 1.16 1.16 0.00 0.94 0.00 0.00 0.44 1.08 0.00 0.69 0.69  
 Delay/Veh: 25.3 99.2 99.2 0.0 55.7 0.0 0.0 50.3 52.2 0.0 62.7 62.7  
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 AdjDel/Veh: 25.3 99.2 99.2 0.0 55.7 0.0 0.0 50.3 52.2 0.0 62.7 62.7  
 LOS by Move: C F A E A A A D A E E  
 HCM2kAvgQ: 30 57 57 0 16 0 0 4 52 0 6 6  
 \*\*\*\*\*  
 Note: Queue reported is the number of cars per lane.

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

----- 19th Ave CS -----  
 Tier 4b - HOT Mixed Flow Lanes Analysis  
 Level Of Service Computation Report  
 2000 HCM Operations Method (Future Volume Alternative)  
 \*\*\*\*\*  
 Intersection #1160 19th Avenue/Holloway Avenue  
 \*\*\*\*\*  
 Cycle (sec): 110 Critical Vol./Cap. (X): 0.940  
 Loss Time (sec): 0 Average Delay (sec/veh): 46.9  
 Optimal Cycle: 90 Level Of Service: D  
 \*\*\*\*\*  
 Street Name: 19th Avenue Holloway Avenue  
 Approach: North Bound South Bound East Bound West Bound  
 Movement: L - T - R L - T - R L - T - R L - T - R  
 Control: Permitted Permitted Permitted Permitted  
 Rights: Include Include Include Include  
 Min. Green: 48 48 48 48 31 31 31 31  
 Y+R: 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0  
 Lanes: 0 2 1 0 0 0 3 1 0 1 0 1 0 1 0 1 0  
 \*\*\*\*\*  
 Volume Module:  
 Base Vol: 0 2683 133 0 3339 166 132 210 149 35 407 53  
 Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 Initial Bse: 0 2683 133 0 3339 166 132 210 149 35 407 53  
 Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
 Transit+Cre: 0 0 0 -89 0 0 0 0 0 0 0 0  
 Initial Fut: 0 2683 133 0 3250 166 132 210 149 35 407 53  
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
 PHF Volume: 0 2738 136 0 3316 169 135 214 152 36 415 54  
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
 Reduced Vol: 0 2738 136 0 3316 169 135 214 152 36 415 54  
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 MLE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 FinalVolume: 0 2738 136 0 3316 169 135 214 152 36 415 54  
 \*\*\*\*\*  
 Saturation Flow Module:  
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
 Adjustment: 1.00 0.95 0.90 1.00 0.96 0.85 0.57 0.57 0.57 0.77 0.77  
 Lanes: 0.00 2.85 0.15 0.00 3.00 1.00 0.54 0.85 0.61 0.14 1.65 0.21  
 Final Sat.: 0 5141 255 0 5446 1615 584 929 659 206 2395 312  
 \*\*\*\*\*  
 Capacity Analysis Module:  
 Vol/Sat: 0.00 0.53 0.53 0.00 0.61 0.10 0.23 0.23 0.23 0.17 0.17  
 Crit Moves: \*\*\*\*  
 Green/Cycle: 0.55 0.55 0.55 0.55 0.55 0.55 0.35 0.35 0.35 0.35 0.35  
 Volume/Cap: 0.00 0.97 0.97 0.00 1.11 0.19 0.66 0.66 0.66 0.50 0.50  
 Delay/Veh: 0.0 26.9 26.9 0.0 70.6 9.0 34.7 34.7 34.7 29.8 29.8  
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 AdjDel/Veh: 0.0 26.9 26.9 0.0 70.6 9.0 34.7 34.7 34.7 29.8 29.8  
 LOS by Move: A C C A E A C C C C C  
 HCM2kAvgQ: 0 32 31 0 59 2 9 9 9 7 7  
 \*\*\*\*\*  
 Note: Queue reported is the number of cars per lane.

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

Tier 4b AM Mon Jan 11, 2010 15:19:27 19th Ave CS Page 4-1

Tier 4B - HOT Mixed Flow Lanes Analysis

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1170 19th Avenue/Crespi Drive

Cycle (sec): 110 Critical Vol./Cap. (X): 0.734

Loss time (sec): 0 Average Delay (sec/veh): 65.4

Optimal Cycle: 75 Level Of Service: E

Street Name: 19th Avenue South Bound East Bound West Bound

Approach: North Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Ignored Split Phase Split Phase

Rights: 48 48 48 53 53 22 22 22 0 0 0 0

Min. Green: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Y+R: 0 0 3 0 0 0 0 3 0 1 1 0 0 0 1 0 0 0 0

Lanes: 0 0 3 0 0 0 0 3 0 1 1 0 0 0 1 0 0 0 0

Volume Module:

Base Vol: 0 2637 0 0 3444 80 106 0 108 0 0 0 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 0 2637 0 0 3444 80 106 0 108 0 0 0 0

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Transit: 0 0 0 0 -19 0 0 0 0 0 0 0 0

Initial Fut: 0 2637 0 0 3425 80 106 0 108 0 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 2691 0 0 3495 0 108 0 110 0 0 0 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 2691 0 0 3495 0 108 0 110 0 0 0 0

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Volume: 0 2691 0 0 3495 0 108 0 110 0 0 0 0

Saturation Flow Module:

Sat/Lane: 1800 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 1.00 0.91 1.00 1.00 0.91 1.00 0.95 1.00 0.85 1.00 1.00 1.00

Lanes: 0.00 3.00 0.00 0.00 3.00 1.00 1.00 0.00 1.00 0.00 0.00 0.00

Final Sat: 0 5187 0 0 5187 1900 1805 0 1615 0 0 0 0

Capacity Analysis Module:

Vol/Sat: 0.00 0.52 0.00 0.00 0.67 0.00 0.06 0.00 0.07 0.00 0.00 0.00

Crit Moves: \*\*\*\*

Green/Cycle: 0.47 0.47 0.47 0.61 0.61 0.29 0.29 0.29 0.00 0.00 0.00 0.00

Volume/Cap: 0.00 1.10 0.00 0.00 1.10 0.00 0.21 0.00 0.23 0.00 0.00 0.00

Delay/Veh: 0.0 74.0 0.0 0.0 60.9 0.0 30.2 0.0 30.7 0.0 0.0 0.0

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 74.0 0.0 0.0 60.9 0.0 30.2 0.0 30.7 0.0 0.0 0.0

LOS by Move: A E A A E A C A C A A A

HCN2kAvgQ: 0 48 0 0 55 0 3 0 3 0 0 0 0

Note: Queue reported is the number of cars per lane.

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

Tier 4b PM Mon Jan 11, 2010 15:19:48 Page 2-1

19th Ave CS

Tier 4B - HOT Mixed Flow Lanes Analysis

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1070 Junipero Serra Blvd./19th Avenue

Cycle (sec): 120 Critical Vol./Cap. (X): 0.953

Loss Time (sec): 0 Average Delay (sec/veh): 69.9

Optimal Cycle: 180 Level Of Service: E

Street Name: Junipero Serra Blvd.

Approach: North Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Split Phase Split Phase Permitted Permitted

Rights: Ignore Ignore OVI Include

Min. Green: 54 54 20 20 20 9 9 9 9

Y+R: 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0

Lanes: 3 0 1 0 0 0 4 0 1 0 0 1 0 0 0 1 0

Volume Module:

Base Vol: 2719 2037 29 0 1429 19 0 161 3545 0 51 80

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 2719 2037 29 0 1429 19 0 161 3545 0 51 80

Added Vol: 0 0 0 0 0 0 0 0

HOT: 0 0 0 0 0 0 0 0

Initial Fut: 2719 2037 29 0 1429 19 0 161 3545 0 51 80

User Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00

PHF Adj: 0.98 0.98 0.00 0.98 0.98 0.00 0.98 0.98

PHF Volume: 2774 2079 0 0 1458 0 0 164 3005 0 52 82

Reduct Vol: 0 0 0 0 0 0 0 0

Reduced Vol: 2774 2079 0 0 1458 0 0 164 3005 0 52 82

PCE Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00

MLF Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00

Final Volume: 2774 2079 0 0 1458 0 0 164 3005 0 52 82

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 0.92 0.95 0.95 1.00 0.91 1.00 1.00 0.92

Lanes: 3.00 2.00 0.00 0.00 4.00 1.00 0.00 1.00

Final Sat.: 5253 3610 0 0 6916 1900 0 1900

Capacity Analysis Module:

Vol/Sat: 0.53 0.58 0.00 0.00 0.21 0.00 0.00 0.09

Crit Moves: \*\*\*\*

Green/Cycle: 0.50 0.50 0.50 0.20 0.20 0.14 0.14 0.14

Volume/Cap: 1.06 1.15 0.00 0.00 1.05 0.00 0.62 1.09

Delay/Veh: 57.8 98.1 0.0 0.0 87.9 0.0 0.0 58.9

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 57.8 98.1 0.0 0.0 87.9 0.0 0.0 58.9

LOS by Move: A F A A F A A E A E

HCM2kAvgQ: 46 60 0 22 0 6 57 0 5

Note: Queue reported is the number of cars per lane.

Tier 4b PM Mon Jan 11, 2010 15:19:48 Page 3-1

19th Ave CS

Tier 4B - HOT Mixed Flow Lanes Analysis

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1160 19th Avenue/Holloway Avenue

Cycle (sec): 120 Critical Vol./Cap. (X): 1.016

Loss Time (sec): 0 Average Delay (sec/veh): 75.9

Optimal Cycle: 180 Level Of Service: E

Street Name: 19th Avenue

Approach: North Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted

Rights: Include Include Include Include

Min. Green: 0 59 59 0 61 61 32 32

Y+R: 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0

Lanes: 0 0 2 1 0 0 0 3 0 1 0 1 0 0 1 0 1 0

Volume Module:

Base Vol: 0 2823 130 0 3756 250 161 221 158 130 518 52

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 0 2823 130 0 3756 250 161 221 158 130 518 52

Added Vol: 0 0 0 0 0 0 0 0

Transit/Crt: 0 0 0 0 0 0 0 0

Initial Fut: 0 2823 130 0 3756 250 161 221 158 130 518 52

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 2881 133 0 3649 255 164 226 161 133 529 53

Reduct Vol: 0 0 0 0 0 0 0 0

Reduced Vol: 0 2881 133 0 3649 255 164 226 161 133 529 53

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Volume: 0 2881 133 0 3649 255 164 226 161 133 529 53

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 1.00 0.95 0.90 1.00 0.96 0.85 0.49 0.49

Lanes: 0.00 2.86 0.14 0.00 3.00 1.00 0.60 0.82

Final Sat.: 0 5159 238 0 5446 1615 553 758

Capacity Analysis Module:

Vol/Sat: 0.00 0.56 0.56 0.00 0.67 0.16 0.30 0.30

Crit Moves: \*\*\*\*

Green/Cycle: 0.58 0.58 0.58 0.58 0.58 0.26 0.26 0.26

Volume/Cap: 0.00 0.96 0.96 0.00 1.16 0.27 1.14 1.14

Delay/Veh: 0.0 24.4 24.4 0.0 89.5 8.5 131.2 131.2

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 24.4 24.4 0.0 89.5 8.5 131.2 131.2

LOS by Move: A C C A F A F F F F

HCM2kAvgQ: 0 35 34 0 73 3 18 18

Note: Queue reported is the number of cars per lane.



Tier 4b PM Mon Jan 11, 2010 15:19:48 19th Ave CS Page 4-1

Tier 4B - HOT Mixed Flow Lanes Analysis

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1170 19th Avenue/Crespi Drive

Cycle (sec): 120 Critical Vol./Cap. (X): 0.788

Loss time (sec): 0 Average Delay (sec/veh): 54.4

Optimal Cycle: 88 Level Of Service: E

Street Name: 19th Avenue Crespi Drive

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Split Phase Split Phase

Rights: Include Ignore 21 Ignore 21 Include

Min. Green: 59 59 0 0 64 64 21 21 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 3 0 0 0 0 3 0 1 1 0 0 0 1 0 0 0 0 0

Volume Module:

Base Vol: 0 2870 0 0 3850 191 59 0 114 0 0 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 0 2870 0 0 3850 191 59 0 114 0 0 0

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Transit: 0 0 0 0 -12 0 0 0 0 0 0 0

Initial Fut: 0 2870 0 0 3838 191 59 0 114 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 2829 0 0 3916 0 60 0 0 0 0 0

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 2929 0 0 3916 0 60 0 0 0 0 0

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Volume: 0 2929 0 0 3916 0 60 0 0 0 0 0

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 1.00 0.91 1.00 1.00 0.91 1.00 0.95 1.00 1.00 1.00 1.00 1.00

Lanes: 0.00 3.00 0.00 0.00 3.00 1.00 1.00 0.00 1.00 1.00 0.00 0.00

Final Sat: 0 5187 0 0 5187 1900 1805 0 1900 0 0 0

Capacity Analysis Module:

Vol/Sat: 0.00 0.56 0.00 0.00 0.76 0.00 0.03 0.00 0.00 0.00 0.00 0.00

Crit Moves: \*\*\*\*\*

Green/Cycle: 0.51 0.51 0.51 0.69 0.69 0.28 0.28 0.28 0.00 0.00 0.00 0.00

Volume/Cap: 0.00 1.11 0.00 0.00 1.10 0.00 0.12 0.00 0.00 0.00 0.00 0.00

Delay/Veh: 0.0 75.6 0.0 0.0 56.5 0.0 33.1 0.0 0.0 0.0 0.0 0.0

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 75.6 0.0 0.0 56.5 0.0 33.1 0.0 0.0 0.0 0.0 0.0

LOS by Move: A E A A E A C A A A A A

HCM2kAVQ: 0 55 0 0 66 0 2 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

Traffix 3.0.0715 (c) 2003 Dowling Assoc. Licensed to AECOM, LOS ANGELES

19th Ave CS  
Tier 4C - HOT Mixed Flow Lanes Analysis

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1070 Junipero Serra Blvd./19th Avenue

Cycle (sec): 110 Critical Vol./Cap.(X): 0.840  
Loss Time (sec): 0 Average Delay (sec/Veh): 67.6  
Optimal Cycle: 116 Level Of Service: E

Street Name: Junipero Serra Blvd. 19th Avenue  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Split Phase Split Phase Ignore Permitted Permitted  
Rights: Include Include Ovl. Include Include  
Min. Green: 46 46 18 18 9 9 9 9 9 9 9 9  
Y+R: 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0  
Lanes: 3 0 1 1 0 0 0 4 0 1 0 0 1 0 3 0 0 0 1 0

Volume Module:  
Base Vol: 2611 1962 12 0 1320 4 0 99 3564 0 69 84  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 2611 1962 12 0 1320 4 0 99 3564 0 69 84  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
HOT: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 2611 1962 12 0 1320 4 0 99 2964 0 69 84  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 2664 2002 12 0 1347 0 0 101 3024 0 70 86  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 2664 2002 12 0 1347 0 0 101 3024 0 70 86

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.01 0.95 0.95 1.00 0.91 1.00 1.00 1.00 0.82 1.00 0.93 0.93  
Lanes: 3.00 1.99 0.01 0.00 4.00 1.00 0.00 1.00 3.00 0.00 0.45 0.55  
Final Sat.: 5778 3584 22 0 6916 1900 0 1900 4690 0 793 966

Capacity Analysis Module:  
Vol/Sat: 0.46 0.56 0.56 0.00 0.19 0.00 0.00 0.05 0.64 0.00 0.09 0.09  
Crit Moves: 0.46 0.56 0.56 0.00 0.19 0.00 0.00 0.05 0.64 0.00 0.09 0.09  
Green/Cycle: 0.46 0.46 0.46 0.24 0.24 0.24 0.13 0.13 0.59 0.13 0.13 0.13  
Volume/Cap: 1.00 1.21 1.21 0.00 0.81 0.00 0.00 0.41 1.09 0.00 0.68 0.68  
Delay/Veh: 42.5 127 126.6 0.0 43.9 0.0 0.0 48.9 62.0 0.0 61.0 61.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 42.5 127 126.6 0.0 43.9 0.0 0.0 48.9 62.0 0.0 61.0 61.0  
LOS by Move: F F F A D A A D E A E E  
HCM2AvgQ: 39 60 60 0 14 0 0 0 3 55 0 6 6

Note: Queue reported is the number of cars per lane.

Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

19th Ave CS  
Tier 4C - HOT Mixed Flow Lanes Analysis

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1160 19th Avenue/Holloway Avenue

Cycle (sec): 110 Critical Vol./Cap.(X): 0.851  
Loss Time (sec): 0 Average Delay (sec/Veh): 112.5  
Optimal Cycle: 97 Level Of Service: F

Street Name: 19th Avenue Holloway Avenue  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Split Phase Split Phase Ignore Permitted Permitted  
Rights: Include Include Ovl. Include Include  
Min. Green: 48 48 48 48 48 48 48 48 48 48 48 48  
Y+R: 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0  
Lanes: 0 0 2 1 0 0 0 3 0 1 0 1 0 0 1 0 1 0

Volume Module:  
Base Vol: 0 2630 133 0 3339 166 132 210 149 11 376 53  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 0 2630 133 0 3339 166 132 210 149 11 376 53  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Transit+cre: 0 0 0 0 -69 0 0 0 0 0 0 0  
Initial Fut: 0 2630 133 0 3270 166 132 210 149 11 376 53  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2684 136 0 3337 169 135 214 152 11 384 54  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2684 136 0 3337 169 135 214 152 11 384 54

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.95 0.90 1.00 0.96 0.85 0.55 0.55 0.55 0.75 0.75 0.75  
Lanes: 0.00 2.85 0.15 0.00 3.00 1.00 0.54 0.85 0.61 0.05 1.71 0.24  
Final Sat.: 0 5136 260 0 5446 1615 564 898 637 72 2448 345

Capacity Analysis Module:  
Vol/Sat: 0.00 0.52 0.52 0.00 0.61 0.10 0.24 0.24 0.24 0.16 0.16 0.16  
Crit Moves: 0.00 0.52 0.52 0.00 0.61 0.10 0.24 0.24 0.24 0.16 0.16 0.16  
Green/Cycle: 0.47 0.47 0.47 0.47 0.47 0.47 0.27 0.27 0.27 0.27 0.27 0.27  
Volume/Cap: 0.00 1.11 1.11 0.00 1.30 0.22 0.88 0.88 0.88 0.58 0.58 0.58  
Delay/Veh: 0.0 80.2 80.2 0.0 163 14.7 56.5 56.5 56.5 37.9 37.9 37.9  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 80.2 80.2 0.0 163 14.7 56.5 56.5 56.5 37.9 37.9 37.9  
LOS by Move: A F F A F A F E E D D  
HCM2AvgQ: 0 46 44 0 77 3 12 12 12 8 8 8

Note: Queue reported is the number of cars per lane.

Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

Tier 4c AM Mon Jan 11, 2010 15:20:17 19th Ave CS Page 4-1

Tier 4C - HOT Mixed Flow Lanes Analysis

Level of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1170 19th Avenue/Crespi Drive

Cycle (sec): 110 Critical Vol./Cap.(X): 0.784

Loss time (sec): 0 Average Delay (sec/veh): 113.9

Optimal Cycle: 95 Level Of Service: F

Street Name: 19th Avenue Crespi Drive

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase

Rights: Include Include Include Include

Min. Green: 20 48 48 53 53 53 22 22 22 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 3 0 0 0 0 3 0 1 1 0 0 0 1 0 0 0 0 0

Volume Module: 67 2637 0 0 3444 55 106 0 108 0 0 0 0

Base Vol: 67 2637 0 0 3444 55 106 0 108 0 0 0 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 67 2637 0 0 3444 55 106 0 108 0 0 0 0

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Transit: 0 0 0 -19 0 0 0 0 0 0 0 0

Initial Fut: 67 2637 0 0 3425 55 106 0 108 0 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 68 2691 0 0 3495 56 108 0 110 0 0 0 0

Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 68 2691 0 0 3495 56 108 0 110 0 0 0 0

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Volume: 68 2691 0 0 3495 56 108 0 110 0 0 0 0

Saturation Flow Module:

Sat/Lane: 1800 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 0.71 0.91 1.00 1.00 0.91 0.85 0.95 1.00 0.85 1.00 1.00 1.00

Lanes: 1.00 3.00 1.00 0.00 3.00 1.00 1.00 0.00 1.00 0.00 0.00 0.00

Final Sat: 1354 5187 0 0 5187 1615 1805 0 1615 0 0 0 0

Capacity Analysis Module:

Vol/Sat: 0.05 0.52 0.00 0.00 0.67 0.03 0.06 0.00 0.07 0.00 0.00 0.00

Crit Moves: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Green/Cycle: 0.42 0.42 0.42 0.57 0.57 0.57 0.25 0.25 0.25 0.00 0.00 0.00

Volume/Cap: 0.12 1.24 0.00 0.00 1.18 0.06 0.24 0.00 0.28 0.00 0.00 0.00

Delay/Veh: 17.6 141 0.0 0.0 102 6.9 34.5 0.0 35.2 0.0 0.0 0.0

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 17.6 141 0.0 0.0 102 6.9 34.5 0.0 35.2 0.0 0.0 0.0

LOS by Move: 8 F A A F A C A D A A A A

HCM2kAvgQ: 1 58 0 0 65 0 3 0 3 0 0 0 0

Note: Queue reported is the number of cars per lane.

Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES



Tier 4c PM	Mon Jan 11, 2010 15:20:49	Page 2-1
19th Ave CS		
Tier 4C - HOT Mixed Flow Lanes Analysis		
Level of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1070 Junipero Serra Blvd./19th Avenue		
Cycle (sec):	120	Critical Vol./Cap.(X): 0.916
Loss Time (sec):	0	Average Delay (sec/veh): 99.6
Optimal Cycle:	180	Level of Service: F
Street Name: Junipero Serra Blvd. 19th Avenue		
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Split Phase	Split Phase
Rights:	Ignore	Permitted
Min. Green:	54 54 54	20 20 20
Y+R:	20.0 20.0 20.0	20.0 20.0 20.0
Lanes:	3 0 1 1 0	0 0 4 0 1
Volume Module:		
Base Vol:	2867 1896	29 0 1429 19 0 161 3545
Growth Adj:	1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse:	2867 1896	29 0 1429 19 0 161 3545
Added Vol:	0 0	0 0 0 0 0 0
HOT:	0 0	0 0 0 0 0 0
Initial Fut:	2867 1896	29 0 1429 19 0 161 3545
User Adj:	1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj:	0.98 0.98	0.98 0.98 0.98 0.98 0.98 0.98
PHF Volume:	2926 1935	0 0 1458 0 0 164 3005
Reduced Vol:	0 0	0 0 0 0 0 0
Reduced Vol:	2926 1935	0 0 1458 0 0 164 3005
PCE Adj:	1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj:	1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
Final Volume:	2926 1935	0 0 1458 0 0 164 3005
Saturation Flow Module:		
Sat/Lane:	1900 1900	1900 1900 1900 1900 1900 1900
Adjustment:	0.92 0.95	1.00 0.91 1.00 1.00 1.00 0.75
Lanes:	3.00 2.00	0.00 4.00 1.00 0.00 1.00 3.00
Final Sat.:	5253 3610	0 0 6916 1900 0 1900 4264
Capacity Analysis Module:		
Vol/Sat:	0.56 0.54	0.00 0.21 0.00 0.00 0.09 0.70
Crit Moves:	0.45 0.45	0.25 0.25 0.25 0.17 0.17 0.62
Green/Cycle:	1.24 1.19	0.00 0.84 0.00 0.00 0.51 1.14
Volume/Cap:	138.4 120	0.0 0.48 0.0 0.0 50.9 78.7
Delay/Veh:	1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
User DelAdj:	1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh:	138.4 120	0.0 0.48 0.0 0.0 50.9 78.7
LOS by Move:	F A A D A D A D	A D A D A D A D
HCM2kAvQ:	62 59	0 0 16 0 0 61

Note: Queue reported is the number of cars per lane.

Tier 4c PM	Mon Jan 11, 2010 15:20:49	Page 3-1
19th Ave CS		
Tier 4C - HOT Mixed Flow Lanes Analysis		
Level of Service Computation Report		
2000 HCM Operations Method (Future Volume Alternative)		
Intersection #1160 19th Avenue/Holloway Avenue		
Cycle (sec):	120	Critical Vol./Cap.(X): 0.997
Loss Time (sec):	0	Average Delay (sec/veh): 141.5
Optimal Cycle:	180	Level of Service: F
Street Name: 19th Avenue Holloway Avenue		
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
Control:	Permitted	Permitted
Rights:	Include	Include
Min. Green:	0 59 59	0 61 61
Y+R:	20.0 20.0 20.0	20.0 20.0 20.0
Lanes:	0 2 1 0	0 3 0 1
Volume Module:		
Base Vol:	0 2823 130	0 3756 250 161 221 158
Growth Adj:	1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse:	0 2823 130	0 3756 250 161 221 158
Added Vol:	0 0	0 0 0 0 0 0
Transit+cre:	0 0	0 -116 0 0 0 0
Initial Fut:	0 2823 130	0 3640 250 161 221 158
User Adj:	1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj:	0.98 0.98	0.98 0.98 0.98 0.98 0.98 0.98
PHF Volume:	0 2881 133	0 3714 255 164 226 161
Reduced Vol:	0 0	0 0 0 0 0 0
Reduced Vol:	0 2881 133	0 3714 255 164 226 161
PCE Adj:	1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj:	1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
Final Volume:	0 2881 133	0 3714 255 164 226 161
Saturation Flow Module:		
Sat/Lane:	1900 1900	1900 1900 1900 1900 1900 1900
Adjustment:	1.00 0.90	1.00 0.91 0.85 0.52 0.52 0.52
Lanes:	0.00 2.87	0.00 3.00 1.00 0.60 0.82 0.58
Final Sat.:	0 4924 227	0 5187 1615 584 802 574
Capacity Analysis Module:		
Vol/Sat:	0.00 0.59	0.59 0.00 0.72 0.16 0.28 0.28
Crit Moves:	0.51 0.51	0.51 0.51 0.51 0.31 0.31 0.31
Green/Cycle:	0.00 1.16	1.16 0.00 1.42 0.31 0.92 0.92
Volume/Cap:	0.00 98.0	0.0 212 14.2 61.9 61.9 61.9
Delay/Veh:	1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
User DelAdj:	1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh:	0.00 98.0	0.0 212 14.2 61.9 61.9 61.9
LOS by Move:	A F F A F A F A	E D E D E D E D
HCM2kAvQ:	0 56 56	0 99 4 14 14 11

Note: Queue reported is the number of cars per lane.

Tier 4c PM

Mon Jan 11, 2010 15:20:49

19th Ave CS

Page 4-1

Tier 4C - HOT Mixed Flow Lanes Analysis

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1170 19th Avenue/Crespi Drive

Cycle (sec): 120

Loss time (sec): 0

Optimal Cycle: 180

Critical Vol./Cap.(X): 0.916

Average Delay (sec/veh): 135.1

Level Of Service: F

Street Name: 19th Avenue

Approach: North Bound

Movement: L - T - R

South Bound

East Bound

West Bound

Control: Protected

Include

Permitted

Split Phase

Ignore

Split Phase

Include

Min. Green: 59

59

0

0

64

64

21

0

21

0

0

0

Y+R: 4.0

4.0

4.0

4.0

4.0

4.0

4.0

4.0

4.0

4.0

4.0

4.0

Lanes: 1

0

3

0

0

0

3

0

1

0

0

1

Volume Module: 226

2870

0

0

3850

115

59

0

114

0

0

0

Growth Adj: 1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

Initial Bse: 226

2870

0

0

3850

115

59

0

114

0

0

0

Added Vol: 0

0

0

0

0

0

0

0

0

0

0

0

Transit: 0

0

0

0

-12

0

0

0

0

0

0

0

Initial Fut: 226

2870

0

0

3838

115

59

0

114

0

0

0

User Adj: 1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

PHF Adj: 0.98

0.98

0.98

0.98

0.98

0.98

0.98

0.98

0.98

0.98

0.98

0.98

PHF Volume: 231

2929

0

0

3916

117

60

0

0

0

0

0

Reduct Vol: 0

0

0

0

0

0

0

0

0

0

0

0

Reduced Vol: 231

2929

0

0

3916

117

60

0

0

0

0

0

PCE Adj: 1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

WLF Adj: 1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

Final Volume: 231

2929

0

0

3916

117

60

0

0

0

0

0

Saturation Flow Module:

Sat/Lane: 1900

1900

1900

1900

1900

1900

1900

1900

1900

1900

1900

Adjustment: 0.95

0.91

1.00

1.00

0.91

0.85

0.95

1.00

1.00

1.00

1.00

1.00

Lanes: 1.00

3.00

0.00

0.00

3.00

1.00

1.00

0.00

1.00

1.00

0.00

1.00

Final Sat: 1805

5187

0

0

5187

1615

1805

0

1900

1900

0

1900

Capacity Analysis Module:

Vol/Sat: 0.13

0.56

0.00

0.00

0.76

0.07

0.03

0.00

0.00

0.00

0.00

0.00

Crit Moves: \*\*\*\*

Green/Cycle: 0.44

0.44

0.44

0.61

0.61

0.20

0.20

0.20

0.00

0.00

0.00

Volume/Cap: 0.29

1.29

0.00

0.00

1.23

0.12

0.16

0.00

0.00

0.00

0.00

0.00

Delay/Veh: 23.1

168

0.0

0.0

123

6.6

48.3

0.0

0.0

0.0

0.0

0.0

User DelAdj: 1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

AdjDel/Ven: 23.1

168

0.0

0.0

123

6.6

48.3

0.0

0.0

0.0

0.0

0.0

LOS by Move: C

F

A

A

F

A

D

A

A

A

A

A

HCM2kAVQ: 5

77

0

0

92

1

2

0

0

0

0

0

Note: Queue reported is the number of cars per lane.

Trafix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

## Analysis for HOT Lane



## 19th Ave CS

## Tier 4A - HOT Analysis: Transit-only lane

## Level of Service Computation Report

## 2000 HCM Operations Method (Future Volume Alternative)

Intersection #1070 Junipero Serra Blvd./19th Avenue  
Cycle (sec): 110 Critical Vol./Cap.(X): 0.855  
Loss Time (sec): 0 Average Delay (sec/veh): 52.8  
Optimal Cycle: 128 Level of Service: D

Street Name: Junipero Serra Blvd.  
Approach: North Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Split Phase Split Phase Split Phase  
Rights: Include Ignore Ovl Include  
Min. Green: 46 46 18 18 18 9 9 9 9 9 9  
Y+R: 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0  
Lanes: 3 0 1 0 0 0 4 0 1 0 0 1 0 0 0 1 0

Volume Module:  
Base Vol: 2555 2016 12 0 1320 4 0 99 600 0 63 85  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 2555 2016 12 0 1320 4 0 99 600 0 63 85  
Added Vol: 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 2555 2016 12 0 1320 4 0 99 600 0 63 85  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 2507 2057 12 0 1347 0 0 101 612 0 64 87  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 2607 2057 12 0 1347 0 0 101 612 0 64 87

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.01 0.95 0.95 1.00 0.91 1.00 1.00 1.00 0.81 1.00 0.92 0.92  
Lanes: 3.00 1.99 0.01 0.00 4.00 1.00 0.00 1.00 1.00 0.00 0.43 0.57  
Final Sat.: 5778 3385 21 0 6916 1900 0 1900 1534 0 747 1007

Capacity Analysis Module:  
Vol/Sat: 0.45 0.57 0.57 0.00 0.19 0.00 0.00 0.05 0.40 0.00 0.09 0.09  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.50 0.50 0.21 0.21 0.21 0.12 0.12 0.67 0.12 0.12 0.12  
Volume/Cap: 0.91 1.16 1.16 0.00 0.94 0.00 0.00 0.43 0.60 0.00 0.69 0.69  
Delay/Veh: 25.2 98.8 98.8 0.0 55.6 0.0 0.0 50.2 6.5 0.0 63.0 63.0  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 25.2 98.8 98.8 0.0 55.6 0.0 0.0 50.2 6.5 0.0 63.0 63.0  
LOS by Move: C F A E A A D A A E E  
HCM2kAvgQ: 30 57 57 0 16 0 0 3 6 0 6 6

Note: Queue reported is the number of cars per lane.

## 19th Ave CS

## Tier 4A - HOT Analysis: Transit-only lane

## Level of Service Computation Report

## 2000 HCM Operations Method (Future Volume Alternative)

Intersection #160 19th Avenue/Holloway Avenue  
Cycle (sec): 110 Critical Vol./Cap.(X): 0.748  
Loss Time (sec): 0 Average Delay (sec/veh): 25.2  
Optimal Cycle: 81 Level of Service: C

Street Name: Holloway Avenue  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 50 50 50 48 48 31 31 31 31 31 31  
Y+R: 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0  
Lanes: 0 0 2 1 0 0 0 1 0 1 0 0 1 0 1 0

Volume Module:  
Base Vol: 0 2630 133 0 89 166 132 210 149 35 407 53  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Initial Bse: 0 2630 133 0 89 166 132 210 149 35 407 53  
Added Vol: 0 0 0 0 0 0 0 0 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2630 133 0 89 166 132 210 149 35 407 53  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2684 136 0 91 169 135 214 152 36 415 54  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2684 136 0 91 169 135 214 152 36 415 54

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.95 0.90 1.00 1.05 0.85 0.59 0.59 0.59 0.82 0.82  
Lanes: 0.00 2.85 0.15 0.00 1.00 1.00 0.54 0.85 0.61 0.14 1.65  
Final Sat.: 0 5136 260 0 1955 1615 598 951 675 221 2570 335

Capacity Analysis Module:  
Vol/Sat: 0.00 0.52 0.52 0.00 0.05 0.10 0.23 0.23 0.23 0.16 0.16  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.55 0.55 0.55 0.55 0.55 0.55 0.35 0.35 0.35 0.35 0.35  
Volume/Cap: 0.00 0.95 0.95 0.00 0.08 0.19 0.65 0.65 0.65 0.46 0.46  
Delay/Veh: 0.0 24.3 24.3 0.0 8.1 9.0 34.3 34.3 34.3 29.3 29.3  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 24.3 24.3 0.0 8.1 9.0 34.3 34.3 34.3 29.3 29.3  
LOS by Move: A C C A A A C C C C C  
HCM2kAvgQ: 0 30 28 0 1 2 8 8 8 7 7

Note: Queue reported is the number of cars per lane.

Tier 4a AM Mon Jan 11, 2010 15:21:54 19th Ave CS Page 4-1

Tier 4a - HOT Analysis: Transit-only lane

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1170 19th Avenue/Crespi Drive

Cycle (sec): 110 Critical Vol./Cap.(X): 0.579

Loss Time (sec): 0 Average Delay (sec/veh): 68.6

Optimal Cycle: 75 Level Of Service: E

Street Name: 19th Avenue Crespi Drive

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control:	Permitted	Include	Permitted	Include	Split Phase	Split Phase
Rights:	48 48 48	53 53 53	22 22 22	22 22 22	0 0 0	0 0 0
Min. Green:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0
Y+R:	0 0 3 0 0	0 0 0 1 0	1 0 0 0 1	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
Lanes:	0 0 3 0 0	0 0 0 1 0	1 0 0 0 1	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0

Volume Module:

Base Vol: 0 2637 0 0 19 80 106 0 108 0 0 0 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 0 2637 0 0 19 80 106 0 108 0 0 0 0

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 2637 0 0 19 80 106 0 108 0 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 2691 0 0 19 82 108 0 110 0 0 0 0

Reduced Vol: 0 2691 0 0 19 82 108 0 110 0 0 0 0

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MTF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 0 2691 0 0 19 82 108 0 110 0 0 0 0

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 1.00 0.91 1.00 1.00 0.89 0.89 0.95 1.00 0.85 1.00 1.00 1.00

Lanes: 0.00 3.00 0.00 0.00 0.19 0.81 1.00 0.00 1.00 0.00 0.00 0.00

Final Sat.: 0 5187 0 0 325 1368 1805 0 1615 0 0 0 0

Capacity Analysis Module:

Vol/Sat: 0.00 0.52 0.00 0.00 0.06 0.06 0.06 0.00 0.07 0.00 0.00 0.00

Crit Moves: \*\*\*\*

Green/Cycle: 0.47 0.47 0.47 0.61 0.61 0.29 0.29 0.29 0.00 0.00 0.00 0.00

Volume/Cap: 0.00 1.10 0.00 0.00 0.10 0.10 0.21 0.00 0.23 0.00 0.00 0.00

Delay/Veh: 0.0 74.0 0.0 0.0 4.9 4.9 30.2 0.0 30.7 0.0 0.0 0.0

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 74.0 0.0 0.0 4.9 4.9 30.2 0.0 30.7 0.0 0.0 0.0

LOS by Move: A A A A A C A C A A A

HCM2kAvgQ: 0 48 0 0 1 3 0 0 3 0 0 0

Note: Queue reported is the number of cars per lane.

Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

Tier 4A - HOT Analysis: Transit-only lane									
19th Ave CS									
Level of Service Computation Report									
2000 HCM Operations Method (Future Volume Alternative)									
Intersection #1070 Junipero Serra Blvd./19th Avenue									
Cycle (sec):	120	Critical Vol./Cap.(X):	1.017						
Loss Time (sec):	17	Average Delay (sec/veh):	71.1						
Optimal Cycle:	180	Level Of Service:	E						
Street Name:	Junipero Serra Blvd.	19th Avenue							
Approach:	North Bound	South Bound	East Bound	West Bound					
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Split Phase	Split Phase	Permitted	Permitted					
Rights:	54 Ignore	20 Ignore	9 Ovl	9 Include					
Min. Green:	54	54	20	20	9	9	9	9	9
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	3	0	1	0	0	0	1	0	0
Volume Module:									
Base Vol:	2719	2037	29	0	1429	19	0	161	600
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	2719	2037	29	0	1429	19	0	161	600
Added Vol:	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0
Initial Fut:	2719	2037	29	0	1429	19	0	161	600
User Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.00	0.98	0.98	0.00	0.98	0.98	0.98
PHF Volume:	2774	2079	0	0	1458	0	0	164	612
Reduced Vol:	0	0	0	0	0	0	0	0	0
PCE Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
FinalVolume:	2774	2079	0	0	1458	0	0	164	612
Saturation Flow Module:									
Sat/Lane:	1800	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.95	0.95	1.00	0.91	1.00	1.00	0.81	1.00
Lanes:	3.00	2.00	0.00	0.00	4.00	1.00	0.00	1.00	0.00
Final Sat.:	5253	3610	0	0	6916	1900	0	1534	0
Capacity Analysis Module:									
Vol/Sat:	0.53	0.58	0.00	0.00	0.21	0.00	0.00	0.09	0.40
Crit Moves:	0.50	0.50	0.00	0.20	0.20	0.14	0.14	0.68	0.14
Green/Cycle:	1.06	1.15	0.00	0.00	1.05	0.00	0.62	0.59	0.00
Volume/Cap:	57.8	98.1	0.0	0.0	87.9	0.0	0.58	5.8	0.0
Delay/Veh:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
User DelAdj:	57.8	98.1	0.0	0.0	87.9	0.0	0.58	5.8	0.0
AdjDel/Veh:	57.8	98.1	0.0	0.0	87.9	0.0	0.58	5.8	0.0
LOS by Move:	E	F	A	A	F	A	A	E	E
HCM2kAvgQ:	46	60	0	0	22	0	0	6	5

Note: Queue reported is the number of cars per lane.

Note: Queue reported is the number of cars per lane.

Tier 4A - HOT Analysis: Transit-only lane									
19th Ave CS									
Level of Service Computation Report									
2000 HCM Operations Method (Future Volume Alternative)									
Intersection #1160 19th Avenue/Holloway Avenue									
Cycle (sec):	120	Critical Vol./Cap.(X):		0.889					
Loss Time (sec):	0	Average Delay (sec/veh):		58.9					
Optimal Cycle:	130	Level of Service:		E					
Street Name: 19th Avenue Holloway Avenue									
Approach: North Bound South Bound East Bound West Bound									
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted
Rights:	Include	Include	Include	Include	Include	Include	Include	Include	Include
Min. Green:	0 59 59	0 59 59	33 33 33	33 33 33	30 30 30	30 30 30	30 30 30	30 30 30	30 30 30
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 2 1 0	0 0 1 0 1	0 1 0 1 0	0 1 0 1 0	0 0 1 0 0	0 0 1 0 0	0 0 1 0 0	0 0 1 0 0	0 0 1 0 0
Volume Module:									
Base Vol:	0	2823	130	0	180	250	161	221	158
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	2823	130	0	180	250	161	221	158
Added Vol:	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0
Initial Fut:	0	2823	130	0	180	250	161	221	158
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	0	2881	133	0	184	255	164	226	161
Reduced Vol:	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	2881	133	0	184	255	164	226	161
Saturation Flow Module:									
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj/Adjustment:	1.00	0.95	0.90	1.00	1.05	0.85	0.48	0.48	0.57
Lanes:	0.00	2.86	0.14	0.00	1.00	1.00	0.60	0.82	0.58
Final Sat.:	0	5159	238	0	1995	1615	547	751	537
Capacity Analysis Module:									
Vol/Sat:	0.00	0.56	0.56	0.00	0.09	0.16	0.30	0.30	0.33
Crit Moves:	0.00	0.58	0.58	0.00	0.58	0.58	0.26	0.26	0.26
Green/Cycle:	0.58	0.58	0.58	0.00	0.16	0.27	1.15	1.15	1.15
Volume/Cap:	0.00	0.97	0.97	0.00	0.76	8.6	132.3	132.3	176.6
Delay/Veh:	0.00	25.0	25.0	0.0	7.6	8.6	132.3	132.3	176.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
LOS by Move:	A	C	C	A	A	A	F	F	F
HCM2kAvgQ:	0	36	34	0	2	3	18	18	26
Note: Queue reported is the number of cars per lane.									

Note: Queue reported is the number of cars per lane.



Tier 4a PM Mon Jan 11, 2010 15:22:29 Page 4-1

19th Ave CS

Tier 4A - HOT Analysis: Transit-only lane

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1170 19th Avenue/Crespi Drive

Cycle (sec): 120 Critical Vol./Cap.(X): 0.598

Loss Time (sec): 0 Average Delay (sec/veh): 70.1

Optimal Cycle: 85 Level Of Service: E

Street Name: 19th Avenue Crespi Drive

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control:	Permitted	Permitted	Permitted	Split Phase	Split Phase
Rights:	Include	Include	Ignore	Include	Include
Min. Green:	59 59 0	0 64 64	21 0 21	0 0 0	0 0 0
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 3 0 0	0 0 0 1 0	1 0 0 0 1	0 0 0 0 0	0 0 0 0 0

Volume Module:

Base Vol:	0 2870	0 12 191	59 0 114	0 0 0
Growth Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Initial Bse:	0 2870	0 12 191	59 0 114	0 0 0
Added Vol:	0 0 0	0 0 0	0 0 0	0 0 0
PasserByVol:	0 0 0	0 0 0	0 0 0	0 0 0
Initial Fut:	0 2870	0 12 191	59 0 114	0 0 0
User Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	0 2829	0 12 195	60 0 0	0 0 0
Reduced Vol:	0 2829	0 12 195	60 0 0	0 0 0
PCE Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
FinalVolume:	0 2829	0 12 195	60 0 0	0 0 0

Saturation Flow Module:

Sat/Lane:	1900 1900	1900 1900	1900 1900	1900 1900
Adjustment:	1.00 0.91	1.00 0.87 0.87	0.95 1.00	1.00 1.00 1.00
Lanes:	0.00 3.00	0.00 0.00 0.06	0.94 1.00 0.00	1.00 0.00 0.00
Final Sat:	0 5187	0 0 98 1561	1805 0 1900	0 0 0

Capacity Analysis Module:

Vol/Sat:	0.00 0.56	0.00 0.12 0.12	0.03 0.00	0.00 0.00 0.00
Crit Moves:	0.00 0.56	0.00 0.12 0.12	0.03 0.00	0.00 0.00 0.00
Green/Cycle:	0.51 0.51	0.69 0.69 0.69	0.28 0.28	0.00 0.00 0.00
Volume/Cap:	0.00 1.11	0.00 0.18 0.18	0.12 0.00	0.00 0.00 0.00
Delay/Veh:	0.0 75.6	0.0 0.0 2.5	2.5 33.1	0.0 0.0 0.0
User DelAdj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	0.0 75.6	0.0 0.0 2.5	2.5 33.1	0.0 0.0 0.0
LOS by Move:	A A A	A A A	C A A	A A A
HCM2kAVGQ:	0 55	0 0 1	2 0 0	0 0 0

Note: Queue reported is the number of cars per lane.

Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

19th Ave CS													
Tier 4B - HOT Analysis: Transit-only lane													
Level of Service Computation Report													
2003 HCM Operations Method (Future Volume Alternative)													
Intersection #1070 Junipero Serra Blvd./19th Avenue													
Cycle (sec):	110	Critical Vol./Cap. (X):		0.855									
Loss Time (sec):	0	Average Delay (sec/veh):		53.0									
Optimal Cycle:	128	Level Of Service:		D									
*****													
Street Name: Junipero Serra Blvd.													
Approach:		North Bound		South Bound		East Bound		West Bound					
Movement:		L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R				
Control:		Split Phase		Split Phase		Permitted		Permitted					
Rights:		Include		Ignore		Ovl		Include					
Min. Green:		46	46	46	18	18	18	9	9	9	9	9	9
Y+R:		20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Lanes:		3	0	1	1	0	0	4	0	1	0	1	0
*****													
Volume Module:													
Base Vol:		2555	2016	12	0	1320	4	0	101	600	0	63	85
Growth Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:		2555	2016	12	0	1320	4	0	101	600	0	63	85
Added Vol:		0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:		0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:		2555	2016	12	0	1320	4	0	101	600	0	63	85
User Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:		0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:		2607	2057	12	0	1347	0	0	103	612	0	64	87
Reduc Vol:		0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:		2607	2057	12	0	1347	0	0	103	612	0	64	87
PCE Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:		2607	2057	12	0	1347	0	0	103	612	0	64	87
*****													
Saturation Flow Module:													
Sat/Lane:		1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:		1.01	0.95	0.95	1.00	0.91	1.00	1.00	1.00	0.81	1.00	0.92	0.92
Lanes:		3.00	1.99	0.01	0.00	4.00	1.00	0.00	1.00	1.00	0.00	0.43	0.57
Final Sat:		5778	3585	21	0	6916	1900	0	1900	1534	0	747	1007
*****													
Capacity Analysis Module:													
Vol/Sat:		0.45	0.57	0.57	0.00	0.19	0.00	0.00	0.05	0.40	0.00	0.09	0.09
Crit Moves:		****											
Green/Cycle:		0.50	0.50	0.50	0.21	0.21	0.21	0.12	0.12	0.67	0.12	0.12	0.12
Volume/Cap:		0.91	1.16	1.16	0.00	0.94	0.00	0.00	0.44	0.60	0.00	0.69	0.69
Delay/Veh:		25.3	99.2	99.2	0.0	55.7	0.0	0.0	50.3	6.6	0.0	62.7	62.7
User DelAdj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:		25.3	99.2	99.2	0.0	55.7	0.0	0.0	50.3	6.6	0.0	62.7	62.7
LOS by Move:		C	F	F	A	E	A	A	A	D	A	E	E
HCM2AvgQ:		30	57	57	0	16	0	0	4	6	0	6	6
*****													
Note: Queue reported is the number of cars per lane.													

Traffix 8.0.0715 (c) 2003 Dowling Assoc. Licensed to AECOM, LOS ANGELES

19th Ave CS									
Tier 4B - HOT Analysis: Transit-only lane									
Level Of Service Computation Report									
2000 HCM Operations Method (Future Volume Alternative)									
Intersection #1160 19th Avenue/Holloway Avenue									
Cycle (sec):	110	Critical Vol./Cap. (X):		0.763					
Loss Time (sec):	0	Average Delay (sec/veh):		27.0					
Optimal Cycle:	79	Level of Service:		C					
*****									
Street Name: 19th Avenue Holloway Avenue									
Approach: North Bound South Bound East Bound West Bound									
Movement: L - T - R L - T - R L - T - R L - T - R									
Control: Permitted Permitted Permitted Permitted									
Rights: Include Include Include Include									
Min. Green: 48 48 48 48 31 31 31 31 31 31									
Y+R: 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0									
Lanes: 0 0 2 1 0 0 0 1 0 1 0 1 0 1 0 1 0									
*****									
Volume Module:									
Base Vol: 0 2683 133 0 89 166 132 210 149 35 407 53									
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00									
Initial Bse: 0 2683 133 0 89 166 132 210 149 35 407 53									
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0									
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0									
Initial Fut: 0 2683 133 0 89 166 132 210 149 35 407 53									
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00									
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98									
PHF Volume: 0 2738 136 0 91 169 135 214 152 36 415 54									
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0									
Reduced Vol: 0 2738 136 0 91 169 135 214 152 36 415 54									
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00									
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00									
FinalVolume: 0 2738 136 0 91 169 135 214 152 36 415 54									
*****									
Saturation Flow Module:									
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900									
Adjustment: 1.00 0.95 0.90 1.00 1.05 0.85 0.57 0.57 0.57 0.77 0.77									
Lanes: 0.00 2.85 0.15 0.00 1.00 1.00 0.54 0.85 0.61 0.14 1.65									
Final Sat.: 0 5141 255 0 1995 1615 584 929 659 206 2395									
*****									
Capacity Analysis Module:									
Vol/Sat: 0.00 0.53 0.53 0.00 0.05 0.10 0.23 0.23 0.23 0.17 0.17									
Crit Moves: 0.00 0.53 0.53 0.00 0.05 0.10 0.23 0.23 0.23 0.17 0.17									
Green/Cycle: 0.55 0.55 0.55 0.55 0.55 0.55 0.35 0.35 0.35 0.35 0.35									
Volume/Cap: 0.00 0.97 0.97 0.00 0.08 0.19 0.66 0.66 0.66 0.50 0.50									
Delay/Veh: 0.0 26.9 26.9 0.0 8.1 9.0 34.7 34.7 34.7 29.8 29.8									
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00									
AdjDel/Veh: 0.0 26.9 26.9 0.0 8.1 9.0 34.7 34.7 34.7 29.8 29.8									
LOS by Move: A C C A A C C C C C C									
HCM2KAVGQ: 0 32 31 0 1 2 9 9 9 7 7									
*****									
Note: Queue reported is the number of cars per lane.									

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

Tier 4b AM Mon Jan 11, 2010 15:23:07 Page 4-1

19th Ave CS

Tier 4B - HOT Analysis: Transit-only lane

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1170 19th Avenue/Crespi Drive

Cycle (sec): 110 Critical Vol./Cap.(X): 0.579

Loss Time (sec): 0 Average Delay (sec/veh): 68.6

Optimal Cycle: 75 Level Of Service: E

Street Name: 19th Avenue Crespi Drive

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control:	Permitted	Include	Split Phase	Split Phase	Include
Right:	48	48	53	53	22
Min. Green:	4.0	4.0	4.0	4.0	4.0
Y+R:	0	0	0	0	0
Lanes:	0	3	0	0	0

Volume Module:

Base Vol:	0	2637	0	0	19	80	106	0	108	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	2637	0	0	19	80	106	0	108	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	2637	0	0	19	80	106	0	108	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	0	2691	0	0	19	82	108	0	110	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	2691	0	0	19	82	108	0	110	0	0	0

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.91	1.00	0.89	0.89	0.95	1.00	0.85	1.00	1.00	1.00	1.00
Lanes:	0.00	3.00	0.00	0.00	0.19	0.81	1.00	0.00	1.00	0.00	0.00	0.00
Final Sat:	0	5187	0	0	325	1368	1805	0	1615	0	0	0

Capacity Analysis Module:

Vol/Sat:	0.00	0.52	0.00	0.00	0.06	0.06	0.00	0.07	0.00	0.00	0.00	0.00
Crit Moves:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Green/Cycle:	0.47	0.47	0.47	0.61	0.61	0.29	0.29	0.29	0.00	0.00	0.00	0.00
Volume/Cap:	0.00	1.10	0.00	0.00	0.10	0.10	0.21	0.00	0.23	0.00	0.00	0.00
Delay/Veh:	0.0	74.0	0.0	0.0	4.9	4.9	30.2	0.0	30.7	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	74.0	0.0	0.0	4.9	4.9	30.2	0.0	30.7	0.0	0.0	0.0
LOS by Move:	A	E	A	A	A	A	A	C	A	C	A	A
HCM2kVagQ:	0	48	0	0	1	1	3	0	3	0	0	0

Note: Queue reported is the number of cars per lane.

Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES



19th Ave CS												
Tier 4B - HOT Analysis: Transit-only lane												
Level of Service Computation Report												
2000 HCM Operations Method (Future Volume Alternative)												
Intersection #1070 Junipero Serra Blvd./19th Avenue												
Cycle (sec):	120	Critical Vol./Cap. (X):		0.873								
Loss Time (sec):	0	Average Delay (sec/veh):		71.1								
Optimal Cycle:	147	Level of Service:		E								
Street Name: Junipero Serra Blvd. 19th Avenue												
Approach: North Bound South Bound East Bound West Bound												
Movement: L - T - R L - T - R L - T - R L - T - R												
Control: Split Phase Split Phase Permitted Permitted												
Rights: Ignore Ovl												
Min. Green: 54 54 20 20 20 9 9 9 9												
Y+R: 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0												
Lanes: 3 0 1 0 0 0 4 0 1 0 0 0 1 0												
Volume Module:												
Base Vol:	2719	2037	29	0	1429	19	0	161	600	0	51	80
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	2719	2037	29	0	1429	19	0	161	600	0	51	80
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	2719	2037	29	0	1429	19	0	161	600	0	51	80
User Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.00	0.98	0.98	0.00	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	2774	2079	0	0	1458	0	0	164	612	0	52	82
Reduc Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	2774	2079	0	0	1458	0	0	164	612	0	52	82
PCE Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	2774	2079	0	0	1458	0	0	164	612	0	52	82
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.95	0.95	1.00	0.91	1.00	1.00	1.00	0.81	1.00	0.92	0.92
Lanes:	3.00	2.00	0.00	0.00	4.00	1.00	0.00	1.00	1.00	0.00	0.39	0.61
Final Sat:	5253	2610	0	0	6916	1900	0	1900	1534	0	679	1065
Capacity Analysis Module:												
Vol/Sat:	0.53	0.58	0.00	0.00	0.21	0.00	0.00	0.09	0.40	0.00	0.08	0.08
Crit Moves:	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00											
Green/Cycle:	0.50	0.50	0.50	0.20	0.20	0.20	0.14	0.14	0.68	0.14	0.14	0.14
Volume/Cap:	1.06	1.15	0.00	0.00	1.05	0.00	0.00	0.62	0.59	0.00	0.55	0.55
Delay/Veh:	57.8	98.1	0.0	0.0	87.9	0.0	0.0	58.9	5.8	0.0	56.6	56.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	57.8	98.1	0.0	0.0	87.9	0.0	0.0	58.9	5.8	0.0	56.6	56.6
LOS by Move:	E	F	A	A	F	A	A	E	A	A	E	E
HCM2kAvgQ:	46	60	0	0	22	0	0	6	5	0	5	5
Note: Queue reported is the number of cars per lane.												

19th Ave CS													
Tier 4B - HOT Analysis: Transit-only lane													
Level of Service Computation Report													
2000 HCM Operations Method (Future Volume Alternative)													
Intersection #160 19th Avenue/Holloway Avenue													
Cycle (sec):	120	Critical Vol./Cap. (X): 0.904											
Loss Time (sec):	0	Average Delay (sec/veh): 62.7											
Optimal Cycle:	150	Level of Service: E											
Street Name: 19th Avenue Holloway Avenue													
Approach:	North Bound	South Bound				East Bound				West Bound			
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	
Control:	Permitted Include	Permitted Include	Permitted Include	Permitted Include	Permitted Include	Permitted Include	Permitted Include	Permitted Include	Permitted Include	Permitted Include	Permitted Include	Permitted Include	
Rights:													
Min. Green:	0 59 59	0 61 61	32 32 32	30 30 30									
Y+R:	20.0 20.0 20.0	20.0 20.0 20.0	20.0 20.0 20.0	20.0 20.0 20.0	20.0 20.0 20.0	20.0 20.0 20.0	20.0 20.0 20.0	20.0 20.0 20.0	20.0 20.0 20.0	20.0 20.0 20.0	20.0 20.0 20.0	20.0 20.0 20.0	
Lanes:	0 0 2 1 0 0	0 0 1 0 1 0	0 1 0 1 0 0	0 1 0 1 0 0	0 1 0 1 0 0	0 1 0 1 0 0	0 1 0 1 0 0	0 1 0 1 0 0	0 1 0 1 0 0	0 1 0 1 0 0	0 1 0 1 0 0	0 1 0 1 0 0	
Volume Module:													
Base Vol:	0	2823	130	0	180	250	161	221	158	130	518	52	
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Initial Bse:	0	2823	130	0	180	250	161	221	158	130	518	52	
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0	
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0	
Initial Fut:	0	2823	130	0	180	250	161	221	158	130	518	52	
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
PHF Volume:	0	2881	133	0	184	255	164	226	161	133	529	53	
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0	
Reduced Vol:	0	2881	133	0	184	255	164	226	161	133	529	53	
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
FinalVolume:	0	2881	133	0	184	255	164	226	161	133	529	53	
Saturation Flow Module:													
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Adjustment:	1.00	0.95	0.90	1.00	1.05	0.85	0.49	0.49	0.49	0.54	0.54	0.54	
Lanes:	0.00	2.86	0.14	0.00	1.00	1.00	0.60	0.82	0.58	0.37	1.48	0.15	
Final Sat:	0	5159	238	0	1995	1615	553	758	542	384	1530	154	
Capacity Analysis Module:													
Vol/Sat:	0.00	0.56	0.56	0.00	0.09	0.16	0.30	0.30	0.30	0.35	0.35	0.35	
Crit Moves:	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00												
Green/Cycle:	0.58	0.58	0.58	0.58	0.58	0.58	0.26	0.26	0.26	0.26	0.26	0.26	
Volume/Cap:	0.00	0.96	0.96	0.00	0.16	0.27	1.14	1.14	1.14	1.33	1.33	1.33	
Delay/Veh:	0.0	24.4	24.4	0.0	7.5	8.5	131.2	131.2	131.2	204.9	205	204.9	
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
AdjDel/Veh:	0.0	24.4	24.4	0.0	7.5	8.5	131.2	131.2	131.2	204.9	205	204.9	
LOS by Move:	A	C	C	A	A	A	F	F	F	F	F	F	
HCM2kAvgQ:	0	35	34	0	2	3	18	18	18	27	27	27	
Note: Queue reported is the number of cars per lane.													

Tier 4b PM Mon Jan 11, 2010 15:23:33 Page 4-1

19th Ave CS

Tier 4B - HOT Analysis: Transit-only lane

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1170 19th Avenue/Crespi Drive

Cycle (sec): 120 Critical Vol./Cap. (X): 0.598

Loss Time (sec): 0 Average Delay (sec/veh): 70.1

Optimal Cycle: 85 Level Of Service: E

Street Name: 19th Avenue Crespi Drive

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Split Phase Split Phase

Rights: Include Include Ignore Include

Min. Green: 59 59 0 0 64 64 21 0 21 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 3 0 0 0 0 0 1 0 1 0 0 0 0 0 0

Volume Module:

Base Vol: 0 2870 0 0 12 191 59 0 114 0 0 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 0 2870 0 0 12 191 59 0 114 0 0 0

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 2870 0 0 12 191 59 0 114 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 2929 0 0 12 195 60 0 0 0 0 0

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 0 2929 0 0 12 195 60 0 0 0 0 0

Saturation Flow Module:

Sat/Lane: 1500 1900 1500 1900 1500 1900 1500 1900 1500 1900 1500 1900

Adjustment: 1.00 0.91 1.00 1.00 0.87 0.87 0.95 1.00 1.00 1.00 1.00 1.00

Lanes: 0.00 3.00 0.00 0.00 0.06 0.94 1.00 0.00 1.00 0.00 0.00 0.00

Final Sat: 0 5187 0 0 58 1561 1805 0 1900 0 0 0

Capacity Analysis Module:

Vol/Sat: 0.00 0.56 0.00 0.00 0.12 0.12 0.03 0.00 0.00 0.00 0.00 0.00

Crit Moves: \*\*\*\*

Green/Cycle: 0.51 0.51 0.51 0.69 0.69 0.69 0.28 0.28 0.28 0.00 0.00 0.00

Volume/Cap: 0.00 1.11 0.00 0.00 0.18 0.18 0.12 0.00 0.00 0.00 0.00 0.00

Delay/Veh: 0.0 75.6 0.0 0.0 2.5 2.5 33.1 0.0 0.0 0.0 0.0 0.0

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 75.6 0.0 0.0 2.5 2.5 33.1 0.0 0.0 0.0 0.0 0.0

LOS by Move: A E A A A A A A A A A A A

HCM2KavgQ: 0 55 0 0 1 1 2 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

Tier 4C - HOT Analysis: Transit-only lane														
Level of Service Computation Report														
2000 HCM Operations Method (Future Volume Alternative)														
Intersection #1070 Junipero Serra Blvd./19th Avenue														
Cycle (sec):	110	Critical Vol./Cap.(X):	0.842											
Loss Time (sec):	0	Average Delay (sec/veh):	65.1											
Optimal Cycle:	118	Level of Service:	E											
Street Name: Junipero Serra Blvd. 19th Avenue														
Approach: North Bound South Bound East Bound West Bound														
Movement: L - T - R L - T - R L - T - R L - T - R														
Control: Split Phase Split Phase Ignore Permitted Permitted														
Rights: Include Include Ovl Include Include														
Min. Green:	46 46 46 18 18 18 9 9 9 9 9 9													
Y+R:	20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0													
Lanes:	3 0 1 1 0 0 0 4 0 1 0 0 1 0 1													
Volume Module:														
Base Vol:	2611 1962 12 0 1320 4 0 99 600 0 69 84													
Growth Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00													
Initial Bse:	2611 1962 12 0 1320 4 0 99 600 0 69 84													
Added Vol:	0 0 0 0 0 0 0 0 0 0 0 0													
PasserByVol:	0 0 0 0 0 0 0 0 0 0 0 0													
Initial fut:	2611 1962 12 0 1320 4 0 99 600 0 69 84													
User Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00													
PHF Adj:	0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98													
PHF Volume:	2664 2002 12 0 1347 0 0 101 612 0 70 86													
Reduc Vol:	0 0 0 0 0 0 0 0 0 0 0 0													
Reduced Vol:	2664 2002 12 0 1347 0 0 101 612 0 70 86													
PCE Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00													
MLF Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00													
FinalVolume:	2664 2002 12 0 1347 0 0 101 612 0 70 86													
Saturation Flow Module:														
Sat/Lane:	1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900													
Adjustment:	1.01 0.95 0.95 1.00 0.91 1.00 1.00 1.00 0.94 1.00 0.93 0.93													
Lanes:	3.00 1.99 0.01 0.00 4.00 1.00 0.00 1.00 1.00 0.00 0.45 0.55													
Final Sat:	5778 3584 22 0 6916 1900 0 1900 1777 0 793 966													
Capacity Analysis Module:														
Vol/Sat:	0.46 0.56 0.56 0.00 0.19 0.00 0.00 0.00 0.05 0.34 0.00 0.09													
Crit Moves:	0.46 0.56 0.56 0.00 0.19 0.00 0.00 0.00 0.05 0.34 0.00 0.09													
Green/Cycle:	0.46 0.46 0.46 0.24 0.24 0.24 0.13 0.13 0.13 0.59 0.13 0.13													
Volume/Cap:	1.00 1.21 1.21 0.00 0.81 0.00 0.00 0.41 0.58 0.00 0.68 0.68													
Delay/Veh:	42.5 127 126.6 0.0 43.9 0.0 0.0 48.9 10.8 0.0 61.0 61.0													
User DelAdj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00													
AdjDel/Veh:	42.5 127 126.6 0.0 43.9 0.0 0.0 48.9 10.8 0.0 61.0 61.0													
LOS by Move:	D F F A A A A A A B A A E													
HCM2kAVGQ:	39 60 60 0 14 0 0 3 9 0 6 6													
Note: Queue reported is the number of cars per lane.														

19thAve CS									
Tier 4C - HOT Analysis: Transit-only lane									
Level of Service Computation Report									
2000 HCM Operations Method (Future Volume Alternative)									
Intersection #1160 19th Avenue/Holloway Avenue									
Cycle (sec):	110	Critical Vol./Cap.(X):	0.761						
Loss Time (sec):	0	Average Delay (sec/veh):	66.6						
Optimal Cycle:	79	Level of Service:	E						
Street Name: 19th Avenue Holloway Avenue									
Approach:	North Bound		South Bound		East Bound		West Bound		
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted
Rights:	Include	Include	Include	Include	Include	Include	Include	Include	Include
Min. Green:	48 48 48	48 48 48	48 31 31	31 31 31	31 31 31	31 31 31	31 31 31	31 31 31	31 31 31
Y+R:	20.0 20.0 20.0	20.0 20.0 20.0	20.0 20.0 20.0	20.0 20.0 20.0	20.0 20.0 20.0	20.0 20.0 20.0	20.0 20.0 20.0	20.0 20.0 20.0	20.0 20.0 20.0
Lanes:	0 0 2 1 0	0 0 1 0 1	0 0 1 0 1	0 0 1 0 1	0 0 1 0 1	0 0 1 0 1	0 0 1 0 1	0 0 1 0 1	0 0 1 0 1
Volume Module:									
Base Vol:	0 2630 133	0 69 166	132 210 149	11 376 53					
Growth Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Initial Bse:	0 2630 133	0 69 166	132 210 149	11 376 53					
Added Vol:	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
PasserByVol:	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
Initial Fut:	0 2630 133	0 69 166	132 210 149	11 376 53					
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98
PHF Volume:	0 2684 136	0 70 169	135 214 152	11 384 54					
Reduced Vol:	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
Reduced Vol:	0 2684 136	0 70 169	135 214 152	11 384 54					
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
FinalVolume:	0 2684 136	0 70 169	135 214 152	11 384 54					
Saturation Flow Module:									
Sat/Lane:	1900 1900 1900	1900 1900 1900	1900 1900 1900	1900 1900 1900	1900 1900 1900	1900 1900 1900	1900 1900 1900	1900 1900 1900	1900 1900 1900
Adjustment:	1.00 0.95 0.90	1.00 1.05 0.85	0.55 0.55 0.55	0.55 0.75 0.75	0.75 0.75 0.75	0.75 0.75 0.75	0.75 0.75 0.75	0.75 0.75 0.75	0.75 0.75 0.75
Lanes:	0.00 2.85 0.15	0.00 1.00 1.00	0.54 0.85 0.61	0.05 1.71 0.24	0.05 1.71 0.24	0.05 1.71 0.24	0.05 1.71 0.24	0.05 1.71 0.24	0.05 1.71 0.24
Final Sat:	0 5136 260	0 1995 1615	564 898 637	72 2448 345					
Capacity Analysis Module:									
Vol/Sat:	0.00 0.52 0.52	0.00 0.04 0.10	0.24 0.24 0.24	0.16 0.16 0.16					
Crit Moves:	0.00 0.52 0.52	0.00 0.04 0.10	0.24 0.24 0.24	0.16 0.16 0.16					
Green/Cycle:	0.47 0.47 0.47	0.47 0.47 0.47	0.27 0.27 0.27	0.27 0.27 0.27	0.27 0.27 0.27	0.27 0.27 0.27	0.27 0.27 0.27	0.27 0.27 0.27	0.27 0.27 0.27
Volume/Cap:	0.00 1.11 1.11	0.00 0.08 0.22	0.88 0.88 0.88	0.58 0.58 0.58	0.58 0.58 0.58	0.58 0.58 0.58	0.58 0.58 0.58	0.58 0.58 0.58	0.58 0.58 0.58
Delay/Veh:	0.00 80.2 80.2	0.0 13.1 14.7	56.5 56.5 56.5	37.9 37.9 37.9	37.9 37.9 37.9	37.9 37.9 37.9	37.9 37.9 37.9	37.9 37.9 37.9	37.9 37.9 37.9
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	0.0 80.2 80.2	0.0 13.1 14.7	56.5 56.5 56.5	37.9 37.9 37.9	37.9 37.9 37.9	37.9 37.9 37.9	37.9 37.9 37.9	37.9 37.9 37.9	37.9 37.9 37.9
LOS by Move:	A F F A B A B E D 0 0 0								
HCM2kAVGQ:	0 46 44 0 1 3 12 12 12 8 8 8								
Note: Queue reported is the number of cars per lane.									



Tier 4c AM Mon Jan 11, 2010 15:23:57 Page 4-1

19th Ave CS

Tier 4C - HOT Analysis: Transit-only lane

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1170 19th Avenue/Crespi Drive

Cycle (sec): 110 Critical Vol./Cap. (X): 0.155

Loss time (sec): 0 Average Delay (sec/veh): 127.0

Optimal Cycle: 95 Level Of Service: F

Street Name: 19th Avenue Crespi Drive

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase

Rights: Include Include Include Include

Min. Green: 20 48 48 53 53 22 22 22 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 3 0 0 0 0 1 0 0 0 1 0 0 0 0 0

Volume Module:

Base Vol: 67 2637 0 0 19 55 106 0 108 0 0 0 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 67 2637 0 0 19 55 106 0 108 0 0 0 0

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 67 2637 0 0 19 55 106 0 108 0 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 68 2691 0 0 19 56 108 0 110 0 0 0 0

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 68 2691 0 0 19 56 108 0 110 0 0 0 0

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Volume: 68 2691 0 0 19 56 108 0 110 0 0 0 0

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 0.71 0.91 1.00 1.00 0.90 0.90 0.95 1.00 0.85 1.00 1.00 1.00

Lanes: 1.00 3.00 0.00 0.00 0.26 0.74 1.00 0.00 1.00 0.00 0.00 0.00

Final Sat.: 1354 5187 0 0 439 1271 1805 0 1615 0 0 0

Capacity Analysis Module:

Vol/Sat: 0.05 0.52 0.00 0.00 0.04 0.04 0.06 0.00 0.07 0.00 0.00 0.00

Crit Moves: \*\*\*\*

Green/Cycle: 0.42 0.42 0.42 0.57 0.57 0.57 0.25 0.25 0.25 0.00 0.00 0.00

Volume/Cap: 0.12 1.24 0.00 0.00 0.08 0.08 0.24 0.00 0.28 0.00 0.00 0.00

Delay/Veh: 17.6 141 0.0 0.0 7.0 7.0 34.5 0.0 35.2 0.0 0.0 0.0

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 17.6 141 0.0 0.0 7.0 7.0 34.5 0.0 35.2 0.0 0.0 0.0

LOS by Move: B F A A A A C A D A A A

HCM2kAVQ: 1 58 0 0 1 1 3 0 3 0 0 0

Note: Queue reported is the number of cars per lane.

Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

19th Ave CS									
Tier 4C - HOT Analysis: Transit-only lane									
Level of Service Computation Report									
2000 HCM Operations Method (Future Volume Alternative)									
Intersection #1070 Junipero Serra Blvd./19th Avenue									
Cycle (sec):	120	Critical Vol./Cap.(X):		0.854					
Loss Time (sec):	0	Average Delay (sec/veh):		100.7					
Optimal Cycle:	128	Level of Service:		F					
Street Name: Junipero Serra Blvd. 19th Avenue									
Approach:		North Bound		South Bound		East Bound		West Bound	
Movement:		L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:		Split Phase		Split Phase		Permitted		Permitted	
Rights:		Ignore		Ignore		Ovl		Include	
Min. Green:		54	54	54	20	20	20	9	68
Y+R:		20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Lanes:		3	0	1	0	0	0	4	1
Volume Module:									
Base Vol:		2867	1896	29	0	1429	19	0	161
Growth Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:		2867	1896	29	0	1429	19	0	161
Added Vol:		0	0	0	0	0	0	0	0
PasserByVol:		0	0	0	0	0	0	0	0
Initial Fut:		2867	1896	29	0	1429	19	0	161
User Adj:		1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:		0.98	0.98	0.00	0.98	0.98	0.98	0.98	0.98
PHF Volume:		2926	1935	0	0	1458	0	0	164
Reduced Vol:		0	0	0	0	0	0	0	0
Reduced Vol:		2926	1935	0	0	1458	0	0	164
PCF Adj:		1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:		1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:		2926	1935	0	0	1458	0	0	164
Saturation Flow Module:									
Sat/Lane:		1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:		0.92	0.95	0.95	1.00	0.91	1.00	1.00	0.85
Lanes:		3.00	2.00	0.00	0.00	4.00	1.00	0.00	1.00
Final Sat:		5253	3610	0	0	6916	1900	0	1615
Capacity Analysis Module:									
Vol/Sat:		0.56	0.54	0.00	0.00	0.21	0.00	0.00	0.09
Crit Moves:		0.45	0.45	0.25	0.25	0.25	0.17	0.17	0.62
Green/Cycle:		1.24	1.19	0.00	0.00	0.84	0.00	0.00	0.51
Volume/Cap:		138.4	120	0.0	0.0	48.0	0.0	0.0	50.9
Delay/Veh:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
User DelAdj:		1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:		138.4	120	0.0	0.0	48.0	0.0	0.0	50.9
LOS by Move:		F	F	A	A	D	A	B	A
HCM2kAVGQ:		62	59	0	0	16	0	0	6

Note: Queue reported is the number of cars per lane.

Note: Queue reported is the number of cars per lane.

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

19th Ave CS									
Tier 4C - HOT Analysis: Transit-only lane									
Level of Service Computation Report									
2000 HCM Operations Method (Future Volume Alternative)									
Intersection #1160 19th Avenue/Holloway Avenue									
Cycle (sec):	120	Critical Vol./Cap.(X):		0.866					
Loss Time (sec):	0	Average Delay (sec/veh):		79.8					
Optimal Cycle:	108	Level of Service:		E					
Street Name: 19th Avenue Holloway Avenue									
Approach:	North Bound		South Bound		East Bound		West Bound		
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted
Rights:	Include	Include	Include	Include	Include	Include	Include	Include	Include
Min. Green:	0	59	59	0	61	61	32	32	30
Y+R:	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Lanes:	0	0	2	1	0	0	1	0	0
Volume Module:									
Base Vol:	0	2923	130	0	116	250	161	221	158
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	2923	130	0	116	250	161	221	158
Added Vol:	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0
Initial Fut:	0	2923	130	0	116	250	161	221	158
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	0	2881	133	0	118	255	164	226	161
Reduced Vol:	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	2881	133	0	118	255	164	226	161
PCF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	2881	133	0	118	255	164	226	161
Saturation Flow Module:									
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.90	0.90	1.00	1.00	0.85	0.52	0.52	0.52
Lanes:	0.00	2.87	0.13	0.00	1.00	1.00	0.60	0.82	0.58
Final Sat:	0	4924	227	0	1900	1615	584	802	574
Capacity Analysis Module:									
Vol/Sat:	0.00	0.59	0.59	0.00	0.06	0.16	0.28	0.28	0.23
Crit Moves:	0.51	0.51	0.51	0.51	0.51	0.31	0.31	0.31	0.31
Green/Cycle:	0.51	0.51	0.51	0.51	0.51	0.31	0.31	0.31	0.31
Volume/Cap:	0.00	1.16	1.16	0.00	0.12	0.31	0.92	0.92	0.74
Delay/Veh:	0.00	98.0	98.0	0.0	12.1	14.2	61.9	61.9	43.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.00	98.0	98.0	0.0	12.1	14.2	61.9	61.9	43.7
LOS by Move:	A	F	F	A	B	B	E	E	D
HCM2kAVGQ:	0	56	56	0	2	4	14	14	11
Note: Queue reported is the number of cars per lane.									

Note: Queue reported is the number of cars per lane.

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

Tier 4c PM Mon Jan 11, 2010 15:24:28 Page 4-1

19th Ave CS

Tier 4C - HOT Analysis: Transit-only lane

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1170 19th Avenue/Crespi Drive

Cycle (sec): 120 Critical Vol./Cap.(X): 0.239

Loss Time (sec): 0 Average Delay (sec/veh): 149.3

Optimal Cycle: 144 Level Of Service: F

Street Name: 19th Avenue Crespi Drive

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Permitted Split Phase Split Phase

Rights: Include Include Ignore Include

Min. Green: 59 59 0 0 64 64 21 0 21 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 3 0 0 0 0 0 1 0 1 0 0 1 1 0 0 0 1

Volume Module:

Base Vol: 226 2870 0 0 12 115 59 0 114 0 0 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 226 2870 0 0 12 115 59 0 114 0 0 0

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 226 2870 0 0 12 115 59 0 114 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PCE Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 231 2929 0 0 12 117 60 0 0 0 0 0

Reduced Vol: 231 2929 0 0 12 117 60 0 0 0 0 0

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Volume: 231 2929 0 0 12 117 60 0 0 0 0 0

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 0.95 0.91 1.00 1.00 0.88 0.88 0.95 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 3.00 0.00 0.00 0.09 0.91 1.00 0.00 1.00 1.00 0.00 1.00

Final Sat: 1805 5187 0 0 158 1511 1805 0 1900 1900 0 1900

Capacity Analysis Module:

Vol/Sat: 0.13 0.56 0.00 0.00 0.08 0.08 0.03 0.00 0.00 0.00 0.00 0.00

Crit Moves: \*\*\*\*

Green/Cycle: 0.44 0.44 0.44 0.61 0.61 0.61 0.20 0.20 0.20 0.00 0.00 0.00

Volume/Cap: 0.29 1.29 0.00 0.00 0.13 0.13 0.16 0.00 0.00 0.00 0.00 0.00

Delay/Veh: 23.1 168 0.0 0.0 6.6 6.6 48.3 0.0 0.0 0.0 0.0 0.0

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 23.1 168 0.0 0.0 6.6 6.6 48.3 0.0 0.0 0.0 0.0 0.0

LOS by Move: C F A A A D A A A A A A

HCM2KAgQ: 5 77 0 0 1 1 2 0 0 0 0 0

Note: Queue reported is the number of cars per lane.



## Combined Analysis

## 19th Ave CS

## Tier 4a - HOT Configuration

Impact Analysis Report  
Level Of Service

Intersection	Base Del/V/	Future Del/V/	Change In
#1070 Junipero Serra / 19th	LOS Veh C 0 42.8 0.942 D 54.3 0.968	LOS Veh C +11.529 D/V	
#1160 19th / Holloway	A 6.7 0.794 D 40.2 0.868	+33.534 O/V	
#1170 19th / Crespi	0 41.8 0.762 E 61.5 0.752	+19.728 O/V	

## 19th Ave CS

## Tier 4a - HOT Configuration

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1070 Junipero Serra / 19th  
 Cycle (sec): 110 Critical Vol./Cap.(X): 0.968  
 Loss Time (sec): 0 Average Delay (sec/veh): 54.3  
 Optimal Cycle: 180 Level Of Service: D  
 \*\*\*\*\*  
 Street Name: Junipero Serra 19th  
 Approach: North Bound South Bound East Bound West Bound  
 Movement: L - T - R L - T - R L - T - R L - T - R  
 Control: Split Phase Split Phase Split Phase Permitted Permitted Permitted Permitted  
 Rights: 46 46 46 18 18 18 9 9 9 9 9 9 9 9 9 9 9  
 Min. Green: 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0  
 Y+R: 3 0 1 0 0 0 4 0 1 0 0 1 0 0 1 0 3 0 0 1 0  
 Lanes: 3 0 1 0 0 0 4 0 1 0 0 1 0 0 1 0 3 0 0 1 0  
 \*\*\*\*\*  
 Volume Module:  
 Base Vol: 2208 1679 8 0 1210 4 0 71 3047 0 56 62  
 Growth Adj: 1.13 1.14 1.12 1.10 1.09 1.11 1.12 1.10 1.10 1.11 1.12 1.12 1.13  
 Initial Bse: 2494 1908 9 0 1321 4 0 78 3345 0 63 70  
 Added Vol: 61 108 3 0 -1 0 0 21 119 0 0 15  
 PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
 Initial Fut: 2555 2016 12 0 1320 4 0 99 3464 0 63 85  
 User Adj: 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00  
 PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.00 0.98 0.98 0.98 0.98 0.98 0.98  
 PHF Volume: 2607 2058 12 0 1347 0 0 101 3535 0 64 87  
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
 Reduced Vol: 2607 2058 12 0 1347 0 0 101 3535 0 64 87  
 PCE Adj: 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00  
 MLF Adj: 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00  
 Final Volume: 2607 2058 12 0 1347 0 0 101 3535 0 64 87  
 \*\*\*\*\*  
 Saturation Flow Module:  
 Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
 Adj: 0.99 0.93 0.93 1.00 0.89 1.00 1.00 0.98 0.81 1.00 0.90 0.90  
 Lanes: 3.00 1.99 0.01 0.00 4.00 1.00 0.00 1.00 3.00 0.00 0.43 0.57  
 Final Sat.: 5662 3513 21 0 6778 1900 0 1862 4596 0 730 987  
 \*\*\*\*\*  
 Capacity Analysis Module:  
 Vol/Sat: 0.46 0.59 0.59 0.00 0.20 0.00 0.00 0.05 0.77 0.00 0.09 0.09  
 Crit Moves: \*\*\*\*  
 Green/Cycle: 0.50 0.50 0.50 0.21 0.21 0.21 0.12 0.12 0.67 0.12 0.12 0.12  
 Volume/Cap: 0.93 1.18 1.18 0.00 0.96 0.00 0.00 0.44 1.15 0.00 0.71 0.71  
 Delay/Veh: 26.8 109 109.0 0.0 58.6 0.0 0.0 50.6 80.9 0.0 64.4 64.4  
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.50 1.00 1.00 1.00  
 AdjDel/Veh: 26.8 109 109.0 0.0 58.6 0.0 0.0 50.6 40.5 0.0 64.4 64.4  
 LOS by Move: C F F A E A A D D A E E  
 HCM2kAvgQ: 28 57 57 0 15 0 0 4 69 0 6 6  
 \*\*\*\*\*  
 Note: Queue reported is the number of cars per lane.





Tier 4a PM	Fri Jan 8, 2010 11:12:52	Page 2-1	
-----			
19th Ave CS			
Tier 4a - HOT Configuration			
-----			
Impact Analysis Report			
Level Of Service			
-----			
Intersection	Base Del/ LOS Veh C	V/ Future Del/ LOS Veh C	Change in 0/V
#1070 Junipero Serra / 19th	D 41.1 1.195	E 70.1 1.259	+29.063 0/V
#1160 19th / Holloway	A 8.8 0.879	E 68.2 1.055	+59.424 D/V
#1170 19th / Crespi	O 37.1 0.814	E 60.8 0.807	+23.625 D/V

Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

Tier 4a PM		Fri Jan 8, 2010 11:12:52										Page 3-1	
19th Ave CS													
Tier 4a - HOT Configuration													
Level of Service Computation Report													
2000 HCM Operations Method (Future Volume Alternative)													
Intersection #1070 Junipero Serra / 19th													
Cycle (sec):	120	Critical Vol./Cap. (X):										1.259	
Loss Time (sec):	17	Average Delay (sec/veh):										70.1	
Optimal Cycle:	180	Level Of Service:										E	
Street Name:	Junipero Serra												
Approach:	North Bound South Bound East Bound West Bound												
Movement:	L - T - R L - T - R L - T - R L - T - R												
Control:	Split Phase Split Phase Permitted Permitted												
Rights:	Ignore Ignore Ovl Include												
Min. Green:	54 54 54	20 20 20	9 9 9	9 9 9									
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0								
Lanes:	3 1 0	0 0 4 1	0 0 1 0	0 1 0 3	0 0 0 1 0								
Volume Module:													
Base Vol:	2410 1660	25	0 1178	17	0 123 3060	0 47 50							
Growth Adj:	1.09 1.12 1.06	1.09 1.18 1.12	1.06 1.01 1.09	1.12 1.06 1.09	1.12 1.06 1.09	1.09							
Initial Bse:	2621 1851	27	0 1388	19	0 124 3346	0 50 54							
Added Vol:	98 186	2	0 41	0	0 37 199	0 1 26							
PasserByVol:	0	0	0 0 0	0	0 0 0	0 0 0							
Initial Fut:	2719 2037	29	0 1429	19	0 161 3545	0 51 80							
User Adj:	1.00 1.00	0.00	1.00 1.00 0.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00							
PHF Adj:	0.98 0.98	0.00	0.98 0.98 0.00	0.98 0.98 0.98	0.98 0.98 0.98	0.98 0.98 0.98							
PHF Volume:	2775 2079	0	0 1458	0	0 164 3617	0 52 82							
Reduc Vol:	0	0	0 0 0	0	0 0 0	0 0 0							
Reduced Vol:	2775 2079	0	0 1458	0	0 164 3617	0 52 82							
PCE Adj:	1.00 1.00	0.00	1.00 1.00 0.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00							
MLF Adj:	1.00 1.00	0.00	1.00 1.00 0.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00							
FinalVolume:	2775 2079	0	0 1458	0	0 164 3617	0 52 82							
Saturation Flow Module:													
Sat/Lane:	1900 1900	1900	1800 1900 1900	1800 1900 1900	1800 1900 1900	1800 1900 1900							
Adjustment:	0.90 0.93	0.95	1.00 0.89	1.00 1.00 0.98	0.73 1.00 0.90	0.90							
Lanes:	3.00 2.00	0.00	0.00 4.00	1.00 0.00 1.00	3.00 0.00 0.39	0.61							
Final Sat:	5147 3538	0	0 6778	1900	0 1862 4178	0 661 1046							
Capacity Analysis Module:													
Vol/Sat:	0.54 0.59	0.00	0.22 0.00 0.09	0.87 0.00 0.08	0.08								
Crit Moves:	****												
Green/Cycle:	0.50 0.50	0.50	0.20 0.20 0.20	0.14 0.14 0.14	0.68	0.14 0.14 0.14							
Volume/Cap:	1.08 1.18	0.00	0.00 1.08	0.00 0.00 0.63	1.27	0.00 0.56 0.56							
Delay/Veh:	66.0 108	0	0 95.7	0	0 59.7 132.2	0 57.3 57.3							
User DelAdj:	1.00 1.00	1.00	1.00 1.00	1.00 1.00 1.00	0.32 1.00 1.00	1.00							
AdjDel/Veh:	66.0 108	0.0	0.0 95.7	0.0 0.0 59.7	42.0 0.0 57.3	57.3							
LOS by Move:	E F A	A A	F A A	A A	E E	E							
HCM2KavgQ:	46 61	0	0 20	0 7 87	0 5	5							
Note: Queue reported is the number of cars per lane.													

19th Ave CS											
Tier 4a - HOT Configuration											
Level Of Service Computation Report											
2000 HCM Operations Method (Future Volume Alternative)											
Intersection #1160 19th / Holloway											
Cycle (sec):	120	Critical Vol./Cap.(X):		1.055							
Loss Time (sec):	0	Average Delay (sec/veh):		68.2							
Optimal Cycle:	180	Level Of Service:		E							
*****											
Street Name: 19th Holloway											
Approach:	North Bound	South Bound	East Bound	West Bound							
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted
Rights:	Include	Include	Include	Include	Include	Include	Include	Include	Include	Include	Include
Min. Green:	0 59	59	0 59	59	33	33	33	30	30	30	30
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 2 1 0	0 0 3 0 1	0 1 0 1 0	0 1 0 1 0	0 1 0 1 0	0 1 0 1 0	0 1 0 1 0	0 1 0 1 0	0 1 0 1 0	0 1 0 1 0	0 1 0 1 0
*****											
Volume Module:											
Base Vol:	0 2489	143	0 3047	145	88	167	88	45	296	41	
Growth Adj:	1.23	1.12	1.15	1.18	1.17	1.15	1.19	1.18	1.27	1.35	1.23
Initial Bse:	0 2776	165	0 3591	184	101	199	104	57	401	51	
Added Vol:	0 47	-35	0 165	66	60	22	54	73	117	1	
PasserbyVol:	0 0	0	0 0	0	0	0	0	0	0	0	
Initial Fut:	0 2823	130	0 3756	250	161	221	158	130	518	52	
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
PHF Volume:	0 2881	132	0 3833	255	165	225	161	133	528	53	
Reduced Vol:	0 0	0	0 0	0	0	0	0	0	0	0	
Reduced Vol:	0 2881	132	0 3833	255	165	225	161	133	528	53	
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
MIF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
FinalVolume:	0 2881	132	0 3833	255	165	225	161	133	528	53	
*****											
Saturation Flow Module:											
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Adjustment:	1.00	0.93	0.89	1.00	0.94	0.83	0.47	0.47	0.47	0.56	0.56
Lanes:	0.00	2.86	0.14	0.00	3.00	1.00	0.60	0.82	0.58	0.37	1.48
Final Sat:	0 5056	233	0 5337	1583	538	735	527	393	1567	156	
*****											
Capacity Analysis Module:											
Vol/Sat:	0.00	0.57	0.57	0.00	0.72	0.16	0.31	0.31	0.34	0.34	0.34
Crit Moves:	*****										
Green/Cycle:	0.58	0.58	0.58	0.58	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Volume/Cap:	0.00	0.99	0.99	0.00	1.24	0.28	1.17	1.17	1.29	1.29	1.29
Delay/Veh:	0.0	28.6	28.6	0.0	127	8.7	141.9	142	141.9	187.3	187.3
User DelAdj:	1.00	1.00	1.00	1.00	0.55	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	28.6	28.6	0.0	70.5	8.7	141.9	142	141.9	187.3	187.3
LOS by Move:	A	C	C	A	E	A	F	F	F	F	F
HCMAvgQ:	0 39	37	0 82	3	19	19	19	26	26	26	26
*****											
Note: Queue reported is the number of cars per lane.											

19th Ave CS											
Tier 4a - HOT Configuration											
Level Of Service Computation Report											
2000 HCM Operations Method (Future Volume Alternative)											
Intersection #1170 19th / Crespi											
Cycle (sec):	120	Critical Vol./Cap.(X):		0.807							
Loss Time (sec):	0	Average Delay (sec/veh):		60.8							
Optimal Cycle:	96	Level Of Service:		E							
*****											
Street Name: 19th Crespi											
Approach:	North Bound	South Bound	East Bound	West Bound							
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted
Rights:	Include	Include	Include	Include	Ignore	Split Phase	Split Phase	Split Phase	Split Phase	Split Phase	Split Phase
Min. Green:	59	59	0	0	64	64	21	0	21	0	0
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	0 0 3 0 0	0 0 2 1 0	1 0 0 0 1	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
*****											
Volume Module:											
Base Vol:	0 2485	0	0 3081	99	147	0	97	0	0	0	0
Growth Adj:	1.15	1.12	1.00	1.00	1.18	1.18	1.00	1.00	1.00	1.18	1.15
Initial Bse:	0 2772	0	0 3631	117	147	0	97	0	0	0	0
Added Vol:	0 99	0	0 219	74	-88	0	17	0	0	0	0
PasserbyVol:	0 0	0	0 0	0	0	0	0	0	0	0	0
Initial Fut:	0 2871	0	0 3850	191	59	0	114	0	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	0 2923	0	0 3929	0	60	0	0	0	0	0	0
Reduced Vol:	0 0	0	0 0	0	0	0	0	0	0	0	0
Reduced Vol:	0 2929	0	0 3929	0	60	0	0	0	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MIF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0 2929	0	0 3929	0	60	0	0	0	0	0	0
*****											
Saturation Flow Module:											
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.89	1.00	1.00	0.89	0.91	0.93	1.00	1.00	1.00	1.00
Lanes:	0.00	3.00	0.00	0.00	3.00	0.00	1.00	0.00	1.00	0.00	0.00
Final Sat:	0 5083	0	0 5083	0	0 5083	0	1769	0	1900	0	0
*****											
Capacity Analysis Module:											
Vol/Sat:	0.00	0.58	0.00	0.00	0.77	0.00	0.03	0.00	0.00	0.00	0.00
Crit Moves:	*****										
Green/Cycle:	0.51	0.51	0.51	0.69	0.69	0.69	0.28	0.28	0.28	0.00	0.00
Volume/Cap:	0.00	1.13	0.00	0.00	1.13	0.00	0.12	0.00	0.00	0.00	0.00
Delay/Veh:	0.0	85.1	0.0	0.0	67.5	0.0	33.1	0.0	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	0.64	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	85.1	0.0	0.0	43.0	1.00	33.1	0.0	0.0	0.0	0.0
LOS by Move:	A	F	A	A	A	A	A	A	A	A	A
HCMAvgQ:	0 57	0	0	70	0	2	0	0	0	0	0
*****											
Note: Queue reported is the number of cars per lane.											

19th Ave CS											
Tier 4a - HOT Configuration											
Level Of Service Computation Report											
2000 HCM Operations Method (future Volume Alternative)											
Intersection #1170 19th / Crespi											
Cycle (sec):	120	Critical Vol./Cap.(X):		0.807							
Loss Time (sec):	0	Average Delay (sec/veh):		60.8							
Optimal Cycle:	96	Level of Service:		E							
*****											
Street Name:	19th Crespi										
Approach:	North Bound		South Bound		East Bound		West Bound				
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Permitted	Permitted	Permitted	Permitted	Split Phase	Split Phase	Split Phase	Split Phase	Split Phase	Split Phase	Split Phase
Rights:	Include	Include	Ignore	Ignore	Ignore	Ignore	Ignore	Ignore	Ignore	Ignore	Ignore
Min. Green:	59	59	0	0	64	64	21	0	21	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	3	0	0	0	2	1	0	1	0
*****											
Volume Module:											
Base Vol:	0	2485	0	0	3081	99	147	0	97	0	0
Growth Adj:	1.15	1.12	1.00	1.00	1.18	1.18	1.00	1.00	1.00	1.18	1.15
Initial Bse:	0	2772	0	0	3631	117	147	0	97	0	0
Added Vol:	0	99	0	0	219	74	-88	0	17	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	2871	0	0	3850	191	59	0	114	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	0	2929	0	0	3929	0	60	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	2929	0	0	3929	0	60	0	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MIF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	2929	0	0	3929	0	60	0	0	0	0
*****											
Saturation Flow Module:											
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.89	1.00	1.00	0.89	0.91	0.93	1.00	1.00	1.00	1.00
Lanes:	0.00	3.00	0.00	0.00	3.00	0.00	1.00	0.00	1.00	0.00	0.00
Final Sat.:	0	5083	0	0	5083	0	1769	0	1900	0	0
*****											
Capacity Analysis Module:											
Vol/Sat:	0.00	0.58	0.00	0.00	0.77	0.00	0.03	0.00	0.00	0.00	0.00
Crit Moves:	*****										
Green/Cycle:	0.51	0.51	0.51	0.69	0.69	0.69	0.28	0.28	0.00	0.00	0.00
Volume/Cap:	0.00	1.13	0.00	0.00	1.13	0.00	0.12	0.00	0.00	0.00	0.00
Delay/Veh:	0.0	85.1	0.0	0.0	67.5	0.0	33.1	0.0	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	0.64	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	85.1	0.0	0.0	43.0	0.0	33.1	0.0	0.0	0.0	0.0
LOS by Move:	A	F	A	A	A	A	C	A	A	A	A
HCMAvgQ:	0	57	0	0	70	0	2	0	0	0	0
*****											
Note: Queue reported is the number of cars per lane.											

19th Ave CS

19th Ave CS

Tier 4b - HOT Configuration

Tier 4b - HOT Configuration

Impact Analysis Report  
Level Of ServiceLevel Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

Intersection	Base Del/ V/ LOS Veh C	Future Del/ V/ LOS Veh C	Change in V
#1070 Junipero Serra / 19th	E 58.0 0.942	D 54.5 0.968	-3.477 D/V
#1160 19th / Holloway	A 6.5 0.696	E 67.2 0.786	+60.715 D/V
#1170 19th / Crespi	D 41.8 0.762	E 61.5 0.752	+19.728 D/V

\*\*\*\*\*  
Intersection #1070 Junipero Serra / 19th  
Cycle (sec): 110 Critical Vol./Cap. (X): 0.968  
Loss Time (sec): 10 Average Delay (sec/Veh): 34.5  
Optimal Cycle: 180 Level Of Service: D  
\*\*\*\*\*

Street Name: Junipero Serra  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Split Phase Split Phase Permitted Permitted  
Rights: Include Ignore Ovl Include  
Min. Green: 46 46 18 18 18 9 9 9 9 9 9 9  
YPR: 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0  
Lanes: 3 0 1 1 0 0 0 4 0 1 0 0 1 0 3 0 0 0 1 0

Volume Module:  
Base Vol: 2208 1679 8 0 1210 4 0 71 3047 0 56 62  
Growth Adj: 1.13 1.14 1.12 1.10 1.09 1.11 1.12 1.10 1.10 1.11 1.12 1.13  
Initial Bse: 2494 1908 9 0 1321 4 0 78 3345 0 63 70  
Added Vol: 61 108 3 0 -1 0 0 21 119 0 0 15  
PasserbyVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 2555 2016 12 0 1320 4 0 99 3464 0 63 85  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 2607 2058 12 0 1347 0 0 101 3535 0 64 87  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 2607 2058 12 0 1347 0 0 101 3535 0 64 87  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Final Volume: 2607 2058 12 0 1347 0 0 101 3535 0 64 87

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.99 0.93 0.93 1.00 0.89 1.00 1.00 0.98 0.81 1.00 0.90 0.90  
Lanes: 3.00 1.99 0.01 0.00 4.00 1.00 0.00 1.00 3.00 0.00 0.43 0.59  
Final Sat.: 5662 3513 21 0 6778 1900 0 1862 4596 0 730 587

Capacity Analysis Module:  
Vol/Sat: 0.46 0.59 0.59 0.00 0.20 0.00 0.00 0.05 0.77 0.00 0.09 0.09  
Vol/Mov: 0.46 0.59 0.59 0.00 0.20 0.00 0.00 0.05 0.77 0.00 0.09 0.09  
Crit Moves: 0.46 0.59 0.59 0.00 0.20 0.00 0.00 0.05 0.77 0.00 0.09 0.09  
Green/Cycle: 0.50 0.50 0.50 0.21 0.21 0.21 0.12 0.12 0.67 0.12 0.12 0.12  
Volume/Cap: 0.93 1.18 1.18 0.00 0.96 0.00 0.00 0.44 1.16 0.00 0.71 0.71  
Delay/Veh: 27.0 109 109.4 0.0 58.7 0.0 0.0 50.5 81.2 0.0 64.1 64.1  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.50 1.00 1.00 1.00  
Adj06i/Veh: 27.0 109 109.4 0.0 58.7 0.0 0.0 50.5 40.8 0.0 64.1 64.1  
LOS by Move: C F A E A A D 0 A E E  
HCM2KavgO: 28 57 0 15 0 0 4 69 0 6 6 6

\*\*\*\*\*  
Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*



19th Ave CS  
Tier 4b - HOT Configuration

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1170 19th / Crespi

Cycle (sec): 110 Critical Vol./Cap. (X): 0.752  
Loss Time (sec): 0 Average Delay (sec/veh): 61.5  
Optimal Cycle: 75 Level of Service: E

Street Name: 19th  
Approach: North Bound South Bound East Bound West Bound

Movement: L T R L T R L T R L T R  
Control: Permitted Include Permitted Split Phase Split Phase  
Rights: 48 48 48 53 53 53 22 22 22 0 0 0  
Min. Green: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Y+R: 0 0 3 0 0 0 0 0 0 0 0 0  
Lanes: 0 0 3 0 0 0 0 0 0 0 0 0

Volume Module:

Base Vol: 0 2266 0 0 3060 110 152 0 68 0 0 0  
Growth Adj: 1.14 1.14 1.05 1.02 1.09 1.12 1.05 1.00 1.02 1.12 1.14 1.14  
Initial Bse: 0 2576 0 0 3342 123 159 0 70 0 0 0  
Added Vol: 0 61 0 0 102 -43 -53 0 38 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2637 0 0 3444 80 106 0 108 0 0 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2690 0 0 3514 0 108 0 110 0 0 0  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2690 0 0 3514 0 108 0 110 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Volume: 0 2690 0 0 3514 0 108 0 110 0 0 0  
FinalVolume: 0 2690 0 0 3514 0 108 0 110 0 0 0

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.89 1.00 1.00 0.89 1.00 0.93 1.00 0.83 1.00 1.00 1.00  
Lanes: 0.00 3.00 0.00 0.00 3.00 1.00 1.00 0.00 1.00 0.00 0.00 0.00  
Final Sat: 0 5083 0 0 5083 1900 1769 0 1593 0 0 0

Capacity Analysis Module:

Vol/Sat: 0.00 0.53 0.00 0.00 0.69 0.00 0.06 0.00 0.07 0.00 0.00 0.00  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.47 0.47 0.47 0.61 0.61 0.61 0.29 0.29 0.29 0.00 0.00 0.00  
Volume/Cap: 0.00 1.12 0.00 0.00 1.13 0.00 0.21 0.00 0.24 0.00 0.00 0.00  
Delay/Veh: 0.0 83.2 0.0 0.0 72.8 0.0 30.3 0.0 30.8 0.0 0.0 0.0  
User DelAdj: 1.00 1.00 1.00 1.00 0.64 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 83.2 0.0 0.0 46.9 0.0 30.3 0.0 30.8 0.0 0.0 0.0  
LOS by Move: A F A A A A C A A A A A  
HCM2AvgQ: 0 50 0 0 58 0 3 0 3 0 0 0

Note: Queue reported is the number of cars per lane.

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

19th Ave CS  
Tier 4b - HOT Configuration

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)  
Intersection #1160 19th / Holloway

Cycle (sec): 110 Critical Vol./Cap. (X): 0.786  
Loss Time (sec): 0 Average Delay (sec/veh): 67.2  
Optimal Cycle: 79 Level of Service: E

Street Name: 19th  
Approach: North Bound South Bound East Bound West Bound

Movement: L T R L T R L T R L T R  
Control: Permitted Include Permitted Split Phase Split Phase  
Rights: 48 48 48 31 31 31 31 31 31 0 0 0  
Min. Green: 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0  
Y+R: 0 0 2 1 0 0 0 4 0 1 0 1 0 1 0 1 0  
Lanes: 0 0 2 1 0 0 0 4 0 1 0 1 0 1 0 1 0

Volume Module:

Base Vol: 0 2288 130 0 3078 138 56 143 55 37 370 50  
Growth Adj: 1.07 1.14 1.18 1.16 1.09 1.05 1.18 1.23 1.16 1.05 1.00 1.07  
Initial Bse: 0 2601 154 0 3361 144 66 176 64 39 370 53  
Added Vol: 0 29 -21 0 -22 22 66 34 85 -4 37 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2630 133 0 3339 166 132 210 149 35 407 53  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2683 135 0 3407 170 135 214 152 35 415 54  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2683 135 0 3407 170 135 214 152 35 415 54  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Volume: 0 2683 135 0 3407 170 135 214 152 35 415 54  
FinalVolume: 0 2683 135 0 3407 170 135 214 152 35 415 54

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.92 0.89 1.00 0.94 0.83 0.52 0.52 0.52 0.67 0.67 0.67  
Lanes: 0.00 2.85 0.15 0.00 4.00 1.00 0.54 0.55 0.61 0.14 1.64 0.22  
Final Sat: 0 5033 254 0 7117 1593 533 844 599 177 2094 273

Capacity Analysis Module:

Vol/Sat: 0.00 0.53 0.53 0.00 0.48 0.11 0.25 0.25 0.25 0.20 0.20 0.20  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.47 0.47 0.47 0.47 0.47 0.27 0.27 0.27 0.27 0.27 0.27 0.27  
Volume/Cap: 0.00 1.13 1.13 0.00 1.02 0.23 0.94 0.94 0.94 0.74 0.74 0.74  
Delay/Veh: 0.0 89.6 89.6 0.0 44.1 14.7 65.5 65.5 65.5 43.6 43.6 43.6  
User DelAdj: 1.00 1.00 1.00 1.00 1.25 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 89.6 89.6 0.0 55.0 14.7 65.5 65.5 65.5 43.6 43.6 43.6  
LOS by Move: A F A D B E E E D D D  
HCM2AvgQ: 0 48 46 0 33 2 13 13 13 10 10 10

Note: Queue reported is the number of cars per lane.

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES



## Tier 4b - HOT Configuration

19th Ave CS

## Level Of Service Computation Report

## 2000 HCM Operations Method (Future Volume Alternative)

Intersection #1170 19th / Crespi

Cycle (sec): 120 Critical Vol./Cap.(X): 0.807

Loss Time (sec): 0 Average Delay (sec/veh): 60.8

Optimal Cycle: 96 Level Of Service: E

Street Name: 19th North Bound South Bound Crespi

Approach: L - T - R L - T - R L - T - R L - T - R

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Include Permitted Include Split Phase Split Phase

Rights: 59 59 0 0 64 64 21 0 21 0 0 0 0

Min. Green: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Y+R: 0 0 3 0 0 0 3 0 1 1 0 0 1 0 0 0 0 0

Lanes: 0 0 3 0 0 0 3 0 1 1 0 0 1 0 0 0 0 0

Volume Module:

Base Vol: 0 2485 0 0 3081 99 147 0 97 0 0 0 0

Growth Adj: 1.15 1.12 1.00 1.00 1.18 1.18 1.00 1.00 1.00 1.18 1.19 1.15

Initial Bse: 0 2772 0 0 3631 117 147 0 97 0 0 0 0

Added Vol: 0 99 0 0 219 74 -88 0 17 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 2871 0 0 3850 131 59 0 114 0 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 2829 0 0 3929 0 60 0 0 0 0 0 0

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Volume: 0 2929 0 0 3929 0 60 0 0 0 0 0 0

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 1.00 0.89 1.00 1.00 0.89 1.00 0.93 1.00 1.00 0.89 1.00 1.00

Lanes: 0.00 3.00 0.00 0.00 3.00 1.00 1.00 0.00 1.00 3.00 0.00 0.00

Final Sat: 0 5083 0 0 5083 1900 1769 0 1900 0 0 0 0

Capacity Analysis Module:

Vol/Sat: 0.00 0.58 0.00 0.00 0.77 0.00 0.03 0.00 0.00 0.00 0.00 0.00

Crit Moves: 0.51 0.51 0.51 0.69 0.69 0.69 0.28 0.28 0.28 0.00 0.00 0.00

Green/Cycle: 0.51 0.51 0.51 0.69 0.69 0.69 0.28 0.28 0.28 0.00 0.00 0.00

Volume/Cap: 0.00 1.13 0.00 0.00 1.13 0.00 0.12 0.00 0.00 0.00 0.00 0.00

Delay/Veh: 0.0 85.1 0.0 0.0 67.5 0.0 33.1 0.0 0.0 0.0 0.0 0.0

User DelAdj: 1.00 1.00 1.00 1.00 0.64 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 85.1 0.0 0.0 43.0 0.0 33.1 0.0 0.0 0.0 0.0 0.0

LOS by Move: A F A A D A C A A A A A A A

HCM2kAvgQ: 0 57 0 0 70 0 2 0 2 0 0 0 0 0 0 0 0

Note: Queue reported is the number of cars per lane.

Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

## Tier 4b - HOT Configuration

19th Ave CS

## Level Of Service Computation Report

## 2000 HCM Operations Method (Future Volume Alternative)

Intersection #1160 19th / Holloway

Cycle (sec): 120 Critical Vol./Cap.(X): 0.929

Loss Time (sec): 0 Average Delay (sec/veh): 85.6

Optimal Cycle: 180 Level Of Service: F

Street Name: 19th North Bound South Bound Holloway

Approach: L - T - R L - T - R L - T - R L - T - R

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Include Permitted Include Split Phase Split Phase

Rights: 59 59 0 61 61 32 32 30 30 30 30 30

Min. Green: 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0

Y+R: 0 0 2 1 0 0 4 0 1 0 1 0 1 0 1 0 1 0

Lanes: 0 0 2 1 0 0 4 0 1 0 1 0 1 0 1 0 1 0

Volume Module:

Base Vol: 0 2489 143 0 3047 145 88 167 88 45 296 41

Growth Adj: 1.23 1.12 1.15 1.18 1.18 1.27 1.15 1.18 1.27 1.35 1.23

Initial Bse: 0 2776 165 0 3591 184 101 199 104 57 401 51

Added Vol: 0 47 -35 0 165 66 60 22 54 73 117 1

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 2823 130 0 3756 250 161 221 158 130 518 52

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume: 0 2881 132 0 3833 255 165 225 161 133 528 53

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Volume: 0 2881 132 0 3833 255 165 225 161 133 528 53

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 1.00 0.89 0.89 1.00 0.89 0.83 0.46 0.46 0.46 0.57 0.57 0.57

Lanes: 0.00 2.87 0.13 0.00 4.00 1.00 0.60 0.82 0.58 0.37 1.48 0.15

Final Sat: 0 4826 222 0 6778 1583 525 718 515 399 1591 159

Capacity Analysis Module:

Vol/Sat: 0.00 0.60 0.60 0.00 0.57 0.16 0.31 0.31 0.31 0.33 0.33 0.33

Crit Moves: 0.51 0.51 0.51 0.51 0.51 0.31 0.31 0.31 0.31 0.31 0.31 0.31

Green/Cycle: 0.51 0.51 0.51 0.51 0.51 0.31 0.31 0.31 0.31 0.31 0.31 0.31

Volume/Cap: 0.00 1.18 1.18 0.00 1.12 0.32 1.03 1.03 1.03 1.09 1.09 1.09

Delay/Veh: 0.0 108 108.3 0.0 80.4 14.3 87.4 87.4 87.4 103.0 103.0 103.0

User DelAdj: 1.00 1.00 1.00 1.00 0.66 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 108 108.3 0.0 69.0 14.3 87.4 87.4 87.4 103.0 103.0 103.0

LOS by Move: A F A E B F F F F F F F F F F

HCM2kAvgQ: 0 59 59 0 51 4 16 16 16 22 22 22

Note: Queue reported is the number of cars per lane.

Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES



Tier 4c AM      Fri Jan 8, 2010 11:16:41      Page 2-1

-----

19th Ave CS

Tier 4c - HOT Configuration

-----

Impact Analysis Report

Level Of Service

-----

Intersection      Base      Future      Change

Del/V/      Del/V/      in

LOS Veh C      LOS Veh C      LOS Veh C

#1070 Junipero Serra / 19th      0 36.9 0.756      E 66.6 0.776      +29.751 D/V

#1160 19th / Holloway      A 8.1 0.696      F 99.3 0.776      +91.168 D/V

#1170 19th / Crespi      D 46.7 0.619      F 105.8 0.640      +59.148 D/V

-----

2000 HCM Operations Method (Future Volume Alternative)

Level Of Service Computation Report

Intersection #1070 Junipero Serra / 19th

Cycle (sec):      110      Critical Vol./Cap.(X):      0.776

Loss Time (sec):      0      Average Delay (sec/veh):      66.6

Optimal Cycle:      83      Level Of Service:      E

-----

Street Name:      Junipero Serra      19th

Approach:      North Bound      South Bound      East Bound      West Bound

Movement:      L - T - R      L - T - R      L - T - R      L - T - R

Control:      Split Phase      Split Phase      Permitted      Permitted

Rights:      Include      Ignore      Ovl      Include

Min. Green:      46 46 46 18 18 18 9 9 9 9 9 9

Y+R:      20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0

Lanes:      3 0 1 1 0 0 0 4 0 1 0 0 1 0 4 0 0 0 1 0

-----

Volume Module:

Base Vol:      2208 1679      8      0 1210      4      0 71 3047      0 56 62

Growth Adj:      1.13 1.14      1.12      1.10 1.09 1.11      1.12 1.10 1.10 1.11 1.12 1.13

Initial Bse:      2494 1908      9      0 1321      4      0 78 3345      0 63 70

Added Vol:      117 54      3      0 -1      0      0 21 119      0 6 14

PasserByVol:      0      0      0      0 0      0      0 0      0 0 0

Initial Fut:      2611 1962      12      0 1320      4      0 99 3464      0 69 84

User Adj:      1.00 1.00      1.00      1.00 1.00 0.00      1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj:      0.98 0.98      0.98      0.98 0.98 0.00      0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume:      2664 2002      12      0 1347      0      0 101 3535      0 70 86

Reduced Vol:      2664 2002      12      0 1347      0      0 101 3535      0 70 86

PCE Adj:      1.00 1.00      1.00      1.00 1.00 0.00      1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj:      1.00 1.00      1.00      1.00 1.00 0.00      1.00 1.00 1.00 1.00 1.00 1.00

Final Volume:      2664 2002      12      0 1347      0      0 101 3535      0 70 86

-----

Saturation Flow Module:

Sat/Lane:      1900 1900      1900 1900 1900      1900 1900 1900 1900 1900 1900

Adjustment:      0.99 0.93      0.93      1.00 0.89 1.00      1.00 0.98 0.81 1.00 0.91 0.91

Lanes:      3.00 1.99      0.01      0.00 4.00 1.00      0.00 1.00 4.00 0.00 0.45 0.55

Final Sat.:      5662 3513      21      0 6778 1900      0 1862 6128      0 776 948

-----

Capacity Analysis Module:

Vol/Sat:      0.47 0.57      0.57      0.00 0.20 0.00      0.00 0.05 0.58 0.00 0.09 0.09

Crit Moves:      0.46 0.46      0.46      0.24 0.24 0.24      0.13 0.13 0.59 0.13 0.13 0.13

Green/Cycle:      0.46 0.46      0.46      0.24 0.24 0.24      0.13 0.13 0.59 0.13 0.13 0.13

Volume/Cap:      1.02 1.24      1.24      0.00 0.83 0.00      0.00 0.42 0.98 0.00 0.70 0.70

Delay/Veh:      48.1 138 137.5      0.0 44.7      0.0      0.0 49.3 23.7      0.0 62.2 62.2

User DelAdj:      1.00 1.00      1.00      1.00 1.00 1.00      1.00 1.00 2.08 1.00 1.00 1.00

AdjDel/Veh:      48.1 138 137.5      0.0 44.7      0.0      0.0 49.3 49.2      0.0 62.2 62.2

LOS by Move:      0 F F A D A A D 0 A D 0 E E

HCM2KAVGO:      35 59 59      0 13 0 0 0 3 38 0 7 7

-----

Note: Queue reported is the number of cars per lane.

Tier 4c AM      Fri Jan 8, 2010 11:16:41      Page 2-1

-----

19th Ave CS

Tier 4c - HOT Configuration

-----

Impact Analysis Report

Level Of Service

-----

Intersection      Base      Future      Change

Del/V/      Del/V/      in

LOS Veh C      LOS Veh C      LOS Veh C

#1070 Junipero Serra / 19th      0 36.9 0.756      E 66.6 0.776      +29.751 D/V

#1160 19th / Holloway      A 8.1 0.696      F 99.3 0.776      +91.168 D/V

#1170 19th / Crespi      D 46.7 0.619      F 105.8 0.640      +59.148 D/V

-----

2000 HCM Operations Method (Future Volume Alternative)

Level Of Service Computation Report

Intersection #1070 Junipero Serra / 19th

Cycle (sec):      110      Critical Vol./Cap.(X):      0.776

Loss Time (sec):      0      Average Delay (sec/veh):      66.6

Optimal Cycle:      83      Level Of Service:      E

-----

Street Name:      Junipero Serra      19th

Approach:      North Bound      South Bound      East Bound      West Bound

Movement:      L - T - R      L - T - R      L - T - R      L - T - R

Control:      Split Phase      Split Phase      Permitted      Permitted

Rights:      Include      Ignore      Ovl      Include

Min. Green:      46 46 46 18 18 18 9 9 9 9 9 9

Y+R:      20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0

Lanes:      3 0 1 1 0 0 0 4 0 1 0 0 1 0 4 0 0 0 1 0

-----

Volume Module:

Base Vol:      2208 1679      8      0 1210      4      0 71 3047      0 56 62

Growth Adj:      1.13 1.14      1.12      1.10 1.09 1.11      1.12 1.10 1.10 1.11 1.12 1.13

Initial Bse:      2494 1908      9      0 1321      4      0 78 3345      0 63 70

Added Vol:      117 54      3      0 -1      0      0 21 119      0 6 14

PasserByVol:      0      0      0      0 0      0      0 0      0 0 0

Initial Fut:      2611 1962      12      0 1320      4      0 99 3464      0 69 84

User Adj:      1.00 1.00      1.00      1.00 1.00 0.00      1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj:      0.98 0.98      0.98      0.98 0.98 0.00      0.98 0.98 0.98 0.98 0.98 0.98

PHF Volume:      2664 2002      12      0 1347      0      0 101 3535      0 70 86

Reduced Vol:      2664 2002      12      0 1347      0      0 101 3535      0 70 86

PCE Adj:      1.00 1.00      1.00      1.00 1.00 0.00      1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj:      1.00 1.00      1.00      1.00 1.00 0.00      1.00 1.00 1.00 1.00 1.00 1.00

Final Volume:      2664 2002      12      0 1347      0      0 101 3535      0 70 86

-----

Saturation Flow Module:

Sat/Lane:      1900 1900      1900 1900 1900      1900 1900 1900 1900 1900 1900

Adjustment:      0.99 0.93      0.93      1.00 0.89 1.00      1.00 0.98 0.81 1.00 0.91 0.91

Lanes:      3.00 1.99      0.01      0.00 4.00 1.00      0.00 1.00 4.00 0.00 0.45 0.55

Final Sat.:      5662 3513      21      0 6778 1900      0 1862 6128      0 776 948

-----

Capacity Analysis Module:

Vol/Sat:      0.47 0.57      0.57      0.00 0.20 0.00      0.00 0.05 0.58 0.00 0.09 0.09

Crit Moves:      0.46 0.46      0.46      0.24 0.24 0.24      0.13 0.13 0.59 0.13 0.13 0.13

Green/Cycle:      0.46 0.46      0.46      0.24 0.24 0.24      0.13 0.13 0.59 0.13 0.13 0.13

Volume/Cap:      1.02 1.24      1.24      0.00 0.83 0.00      0.00 0.42 0.98 0.00 0.70 0.70

Delay/Veh:      48.1 138 137.5      0.0 44.7      0.0      0.0 49.3 23.7      0.0 62.2 62.2

User DelAdj:      1.00 1.00      1.00      1.00 1.00 1.00      1.00 1.00 2.08 1.00 1.00 1.00

AdjDel/Veh:      48.1 138 137.5      0.0 44.7      0.0      0.0 49.3 49.2      0.0 62.2 62.2

LOS by Move:      0 F F A D A A D 0 A D 0 E E

HCM2KAVGO:      35 59 59      0 13 0 0 0 3 38 0 7 7

-----

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4c - HOT Configuration

## Level Of Service Computation Report

## 2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #160 19th / Holloway  
\*\*\*\*\*Cycle (sec): 110 Critical Vol./Cap.(X): 0.776  
Loss Time (sec): 0 Average Delay (sec/veh): 99.3  
Optimal Cycle: 79 Level Of Service: F  
\*\*\*\*\*

Street Name: 19th South Bound East Bound West Bound

Approach: North Bound  
Movement: L - T - R L - T - R L - T - R L - T - RControl: Permitted Include Permitted Include  
Rights: 48 48 48 48 31 31 31 31  
Min. Green: 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0  
Y/R: 0 0 2 1 0 0 4 0 1 0 1 0 0 1 0 1 0  
Lanes: 0 0 2 1 0 0 0 4 0 1 0 1 0 0 1 0 0

Volume Module:

Base Vol: 0 2288 130 0 3078 138 56 143 55 37 370 50  
Growth Adj: 1.07 1.14 1.18 1.16 1.09 1.05 1.18 1.23 1.16 1.05 1.00 1.07  
Initial Bse: 0 2601 154 0 3361 144 66 176 64 39 370 53  
Added Vol: 0 29 -21 0 -22 22 66 34 85 -28 6 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2630 133 0 3339 166 132 210 149 11 376 53  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHE Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHE Volume: 0 2683 135 0 3407 170 135 214 152 11 384 54  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 0 2683 135 0 3407 170 135 214 152 11 384 54  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 0 2683 135 0 3407 170 135 214 152 11 384 54

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 1.00 0.93 0.89 1.00 0.94 0.83 0.54 0.54 0.54 0.74 0.74 0.74  
Lanes: 0.00 2.85 0.15 0.00 4.00 1.00 0.54 0.85 0.61 0.05 1.71 0.24  
Final Sat: 0 5033 254 0 7117 1583 554 879 624 68 2410 342

Capacity Analysis Module:

Vol/Sat: 0.00 0.53 0.53 0.00 0.48 0.11 0.24 0.24 0.24 0.16 0.16 0.16  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.47 0.47 0.47 0.47 0.47 0.27 0.27 0.27 0.27 0.27 0.27 0.27  
Volume/Cap: 0.00 1.13 1.13 0.00 1.02 0.23 0.90 0.90 0.90 0.59 0.59 0.59  
Delay/Veh: 0.00 89.6 89.6 0.00 44.1 14.7 59.0 59.0 59.0 38.2 38.2 38.2  
User DelAdj: 1.00 1.00 1.00 1.00 2.65 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.00 89.6 89.6 0.00 125.14.7 59.0 59.0 59.0 38.2 38.2 38.2  
LOS by Move: A F F A F B E E D D D D  
HCMZRAvgQ: 0 48 46 0 33 2 12 12 12 8 8 8  
Note: Queue reported is the number of cars per lane.

Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

19th Ave CS  
Tier 4c - HOT Configuration

## Level Of Service Computation Report

## 2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #170 19th / Crespi  
\*\*\*\*\*Cycle (sec): 110 Critical Vol./Cap.(X): 0.640  
Loss Time (sec): 0 Average Delay (sec/veh): 105.8  
Optimal Cycle: 95 Level Of Service: F  
\*\*\*\*\*

Street Name: 19th South Bound East Bound West Bound

Approach: North Bound  
Movement: L - T - R L - T - R L - T - R L - T - RControl: Permitted Include Permitted Include  
Rights: 20 48 48 53 53 53 22 22 22 0 0 0  
Min. Green: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Y/R: 1 0 3 0 0 0 0 3 1 0 0 0 1 0 0 0 0  
Lanes: 1 0 3 0 0 0 0 3 1 0 0 0 1 0 0 0 0

Volume Module:

Base Vol: 4 2266 0 0 3060 110 152 0 68 0 0 0  
Growth Adj: 1.14 1.14 1.05 1.02 1.09 1.12 1.05 1.00 1.02 1.12 1.14 1.14  
Initial Bse: 5 2576 0 0 3342 123 159 0 70 0 0 0  
Added Vol: 62 61 0 0 102 -68 -53 0 38 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 67 2637 0 0 3444 55 106 0 108 0 0 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHE Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHE Volume: 68 2690 0 0 3514 56 108 0 110 0 0 0  
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Reduced Vol: 68 2690 0 0 3514 56 108 0 110 0 0 0  
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 68 2690 0 0 3514 56 108 0 110 0 0 0

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.70 0.89 1.00 1.00 0.89 0.89 0.93 1.00 0.83 1.00 1.00 1.00  
Lanes: 1.00 3.00 0.00 0.00 3.94 0.06 1.00 0.00 1.00 0.00 0.00 0.00  
Final Sat: 1327 5083 0 0 6658 106 1769 0 1583 0 0 0

Capacity Analysis Module:

Vol/Sat: 0.05 0.53 0.00 0.00 0.53 0.53 0.06 0.00 0.07 0.00 0.00 0.00  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.42 0.42 0.42 0.57 0.57 0.57 0.25 0.25 0.25 0.00 0.00 0.00  
Volume/Cap: 0.12 1.27 0.00 0.00 0.93 0.93 0.25 0.00 0.28 0.00 0.00 0.00  
Delay/Veh: 17.6 152 0.0 0.0 19.1 19.1 34.6 0.0 35.3 0.0 0.0 0.0  
User DelAdj: 1.00 1.00 1.00 1.00 4.10 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 17.6 152 0.0 0.0 78.2 19.1 34.6 0.0 35.3 0.0 0.0 0.0  
LOS by Move: B F A A E B C A D A A A  
HCMZRAvgQ: 1 60 0 0 26 26 3 0 3 0 0 0  
Note: Queue reported is the number of cars per lane.

Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to AECOM, LOS ANGELES

## 19th Ave CS

## Tier 4c - HOT Configuration

Impact Analysis Report  
Level Of Service

Intersection	Base Del/ V/ LOS Veh C	Future Del/ V/ LOS Veh C	Change in
#1070 Junipero Serra / 19th	C 34.6 0.822	F 97.6 0.872	+63.065 D/V
#1160 19th / Holloway	A 9.0 0.801	F 123.2 0.884	+114.221 D/
#1170 19th / Crespi	D 38.6 0.692	F 124.7 0.764	+86.110 D/V

## 19th Ave CS

## Tier 4c - HOT Configuration

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #1070 Junipero Serra / 19th  
Cycle (sec): 120 Critical Vol./Cap.(X): 0.872  
Loss Time (sec): 0 Average Delay (sec/veh): 97.6  
Optimal Cycle: 145 Level of Service: F  
\*\*\*\*\*

Street Name: Junipero Serra 19th  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Split Phase Split Phase Permitted Permitted  
Rights: Ignore Ignore Ovl Include  
Min. Green: 54 54 20 20 20 9 68 9 9  
Y+R: 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0  
Lanes: 3 0 1 1 0 0 0 4 0 1 0 0 1 0 4 0 0 0 1 0

Volume Module:  
Base Vol: 2410 1660 25 0 1178 17 0 123 3060 0 47 50  
Growth Adj: 1.09 1.12 1.06 1.09 1.18 1.12 1.06 1.01 1.09 1.12 1.06 1.09  
Initial Bse: 2621 1851 27 0 1388 19 0 124 3346 0 50 54  
Added Vol: 246 45 2 0 41 0 0 37 199 0 10 23  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 2867 1896 29 0 1429 19 0 161 3545 0 60 77  
User Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.00 0.98 0.98 0.00 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 2926 1935 0 0 1458 0 0 164 3617 0 61 79  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 2926 1935 0 0 1458 0 0 164 3617 0 61 79  
MLF Adj: 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00  
FinalVolume: 2926 1935 0 0 1458 0 0 164 3617 0 61 79

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.90 0.93 0.95 1.00 0.89 1.00 1.00 0.98 0.73 1.00 0.91 0.91  
Lanes: 3.00 2.00 0.00 0.00 4.00 1.00 0.00 1.00 4.00 0.00 4.44 0.56  
Final Sat.: 5147 3538 0 0 6778 1900 0 1862 5571 0 750 970

Capacity Analysis Module:  
Vol/Sat: 0.57 0.55 0.00 0.00 0.22 0.00 0.00 0.09 0.65 0.00 0.08 0.08  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.45 0.45 0.45 0.25 0.25 0.17 0.17 0.62 0.17 0.17 0.17 0.17  
Volume/Cap: 1.26 1.22 0.00 0.00 0.86 0.00 0.00 0.52 1.05 0.00 0.48 0.48  
Delay/Veh: 149.6 131 0.0 0.0 49.0 0.0 0.0 51.3 41.5 0.0 50.5 50.5  
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.48 1.00 1.00 1.00  
AdjDel/Veh: 149.6 131 0.0 0.0 49.0 0.0 0.0 51.3 61.6 0.0 50.5 50.5  
LOS by Move: F F A A D A A D E A D D  
HCM2AvgQ: 62 59 0 0 15 0 0 6 49 0 5 5

\*\*\*\*\*  
Note: Queue reported is the number of cars per lane.



19th Ave CS  
Tier 4c - HOT Configuration

## Level of Service Computation Report

## 2000 HCM Operations Method (Future Volume Alternative)

## Intersection #1160 19th / Holloway

Cycle (sec): 120 Critical Vol./Cap.(X): 0.884  
Loss Time (sec): 0 Average Delay (sec/veh): 123.2  
Optimal Cycle: 124 Level of Service: F

Street Name: 19th Holloway  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Permitted Permitted Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 0 59 59 0 61 61 32 32 32 30 30 30  
Y+R: 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0  
Lanes: 0 0 2 1 0 0 0 4 0 1 0 1 0 1 0

Volume Module:  
Base Vol: 0 2489 143 0 3047 145 88 167 88 45 296 41  
Growth Adj: 1.23 1.12 1.15 1.18 1.18 1.27 1.15 1.19 1.18 1.27 1.35 1.23  
Initial Bse: 0 2776 165 0 3591 184 101 199 104 57 401 51  
Added Vol: 0 47 -35 0 165 66 60 22 54 -2 49 1  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 2823 130 0 3756 250 161 221 158 55 450 52  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 0 2881 132 0 3833 255 165 225 161 56 459 53  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 0 2881 132 0 3833 255 165 225 161 56 459 53  
MUF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Final Volume: 0 2881 132 0 3833 255 165 225 161 56 459 53

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.00 0.89 0.89 1.00 0.89 0.83 0.51 0.51 0.51 0.65 0.65 0.65  
Lanes: 0.00 2.87 0.13 0.00 4.00 1.00 0.60 0.82 0.58 0.20 1.62 0.18  
Final Sat.: 0 4826 222 0 6778 1583 574 785 562 243 1991 228

Capacity Analysis Module:  
Vol/Sat: 0.00 0.60 0.60 0.00 0.57 0.16 0.29 0.29 0.29 0.23 0.23 0.23  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.51 0.51 0.51 0.51 0.51 0.31 0.31 0.31 0.31 0.31 0.31 0.31  
Volume/Cap: 0.00 1.18 1.18 0.00 1.12 0.32 0.94 0.94 0.94 0.75 0.75 0.75  
Delay/Veh: 0.0 108 108.3 0.0 80.4 14.3 65.5 65.5 65.5 44.5 44.5 44.5  
User DelAdj: 1.00 1.00 1.00 1.00 2.02 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 0.0 108 108.3 0.0 162 14.3 65.5 65.5 65.5 44.5 44.5 44.5  
LOS by Move: A F F A F B E E D D  
HCM2kAVGQ: 0 59 59 0 51 4 14 14 14 12 12 12

Note: Queue reported is the number of cars per lane.

19th Ave CS  
Tier 4c - HOT Configuration

## Level of Service Computation Report

## 2000 HCM Operations Method (Future Volume Alternative)

## Intersection #1170 19th / Crespi

Cycle (sec): 120 Critical Vol./Cap.(X): 0.764  
Loss Time (sec): 0 Average Delay (sec/veh): 124.7  
Optimal Cycle: 144 Level of Service: F

Street Name: 19th Crespi  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
Control: Protected Protected Permitted Permitted  
Rights: Include Include Include Include  
Min. Green: 59 59 0 0 64 64 21 0 21 0 0 0  
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0  
Lanes: 1 0 3 0 0 0 0 3 1 0 1 0 0 1

Volume Module:  
Base Vol: 60 2485 0 0 3081 99 147 0 97 0 0 0  
Growth Adj: 1.15 1.12 1.00 1.00 1.18 1.18 1.00 1.00 1.00 1.18 1.19 1.15  
Initial Bse: 69 2772 0 0 3631 117 147 0 97 0 0 0  
Added Vol: 157 99 0 0 219 -2 -88 0 17 0 0 0  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 226 2871 0 0 3850 115 59 0 114 0 0 0  
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
PHF Adj: 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98  
PHF Volume: 231 2929 0 0 3929 118 60 0 0 0 0 0  
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
PCE Adj: 231 2929 0 0 3929 118 60 0 0 0 0 0  
MUF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
Final Volume: 231 2929 0 0 3929 118 60 0 0 0 0 0

Saturation Flow Module:  
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900  
Adjustment: 0.93 0.89 1.00 1.00 0.89 0.89 0.93 1.00 1.00 1.00 1.00  
Lanes: 1.00 3.00 0.00 0.00 3.88 0.12 1.00 0.00 1.00 1.00 0.00  
Final Sat.: 1769 5083 0 0 6554 196 1769 0 1900 1900 0 1900

Capacity Analysis Module:  
Vol/Sat: 0.13 0.58 0.00 0.00 0.60 0.60 0.03 0.00 0.00 0.00 0.00  
Crit Moves: \*\*\*\*  
Green/Cycle: 0.44 0.44 0.44 0.61 0.61 0.61 0.20 0.20 0.20 0.00 0.00  
Volume/Cap: 0.30 1.31 0.00 0.00 0.98 0.98 0.17 0.00 0.00 0.00 0.00  
Delay/Veh: 23.2 179 0.0 0.0 24.4 24.4 48.4 0.0 0.0 0.0 0.0  
User DelAdj: 1.00 1.00 1.00 1.00 3.85 1.00 1.00 1.00 1.00 1.00 1.00  
AdjDel/Veh: 23.2 179 0.0 0.0 94.1 24.4 48.4 0.0 0.0 0.0 0.0  
LOS by Move: C F A A F C D A A A A  
HCM2kAVGQ: 5 79 0 0 44 2 0 0 0 0 0 0

Note: Queue reported is the number of cars per lane.







